# FEDERAL PATENT POLICY

## HEARING
BEFORE THE
SUBCOMMITTEE ON
SCIENCE, TECHNOLOGY, AND SPACE
OF THE
COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE
NINETY-SEVENTH CONGRESS
FIRST SESSION
ON
STAFF WORKING DRAFT
ENTITLED THE "UNIFORM SCIENCE AND TECHNOLOGY RESEARCH AND DEVELOPMENT UTILIZATION ACT"

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# FEDERAL PATENT POLICY

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TUESDAY, JULY 28, 1981

U.S. Senate,
Committee on Commerce, Science, Transportation,
Subcommittee on Science, Technology, and Space,
*Washington, D.C.*

The subcommittee met at 9:45 a.m. in room 235 of the Russell Senate Office Building; Hon. Slade Gorton, presiding.

## OPENING STATEMENT BY SENATOR GORTON

Senator **Gorton**. This meeting will come to order under my chairmanship, until such time as Senator Schmitt can arrive or until 10:30, when I have a previous commitment. I will read into the record an opening statement, which is that of the chairman of the subcommittee.

The Federal Government currently supports some $35 billion in research and development through grants and contracts. It is this enormous investment which has led directly to such spectacular achievements as the landing of American explorers on the Moon and a new era of utilization of the extraterrestial environment, which was heralded by the successful launch of the Space Shuttle.

Less immediately apparent are the discoveries in electronics which have revolutionized our lives; recombinant DNA, a source of new breakthroughs for the treatment of disease; or the development of new food sources. The value of much of this research and development is lost unless the discoveries and inventions which result can be commercialized. This result, in turn, can best be achieved if those who perform the R. & D. have the opportunity and the incentive to effect that commercialization.

Unfortunately, the policies of Federal agencies vary widely regarding the assignment of patent rights to performers of federally funded R. & D. The Government's policy generally has been to retain title and rights to these inventions. As a result, the Government presently holds title to some 28,000 inventions, of which only about 5 percent have been commercialized.

We think that a better payoff of our national investment in R. & D. is possible, and that reform of government patent policies is an important ingredient. One such step was taken in the last Congress with the passage of Public Law 96-517, the University and Small Business Patent Procedures Act. That act provides for uniform assignment to universities, small businesses and nonprofit organizations of title to inventions developed under Federal research and development grants and contracts.

Regulations have been developed by the Office of Federal Procurement Policy and are now out for comment. The number of universities with formal mechanisms for handling inventions is growing steadily. Unfortunately, the majority of Federal funding for research and development goes to larger businesses which are not governed by Public Law 96–517.

We believe that the rights to the title for inventions should be extended to all contractors regardless of size. Our draft bill provides for the necessary uniform procedures and assigns responsibility for implementation to the Secretary of Commerce. Specific situations in which the Government would retain title are narrowly drawn to protect the public interest where necessary. Otherwise, the title will be assumed by the contractor. The Government also retains certain march-in rights which can be exercised in the event that the contractor fails to take reasonable and timely steps to develop the invention.

The bill not just provides solemnly for proprietary rights, but also a clear obligation for the recipient. Inventions and discoveries which result from Government-sponsored research and development must be developed, marketed and used, if the public is to benefit fully from its investment of tax dollars. The bill which is proposed will encourage that process.

This issue has been debated by the Congress on and on for over 30 years. Now is the time and the opportunity to make a decision. Our initial witness will be Robert Benson, director of the Patent Law Department of Allis Chalmers.

[The staff working draft follows:]

# [STAFF WORKING DRAFT]

SEPTEMBER 15, 1981

97TH CONGRESS
1ST SESSION

# S.

Entitled the "Uniform Science and Technology Research and Development Utilization Act".

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IN THE SENATE OF THE UNITED STATES

SEPTEMBER , 1981

Mr.  introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

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# A BILL

Entitled the "Uniform Science and Technology Research and Development Utilization Act".

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

## TITLE I—POLICY

### FINDINGS

SEC. 101. The Congress, recognizing the profound impact of science, engineering, and technology policy on the economic, social, political, and technological well-being, and safety of the Nation as a whole, hereby finds and declares that:

(1) The United States has recently experienced a decline in the process of industrial innovation and productivity which is integrally related to, and adversely impacts upon, domestic productivity, the rate of economic growth, the level of employment, the balance of trade, and the attainment of other national goals.

(2) The national support of scientific and technological research and development is indispensable to sustained growth and economic stability, and it is in the national interest to maximize the benefits to the general public from such investment.

(3) Scientific and technological developments and discoveries resulting from work performed with Government contracts constitute a valuable national resource which should be developed in a manner consistent with the public interest and the equities of the respective parties.

(4) Current Federal policy with respect to the allocation of rights to the results of federally sponsored research and development deters contractor participation in Government contracts, delays technological progress, and stifles the innovative process.

(5) There is a need for the establishment and implementation of a flexible Government-wide policy for the management and utilization of the results of federally funded research and development. This policy should promote the progress of science and the useful arts, encourage the efficient commercial utilization of techological developments and discoveries, guarantee the protection of the public interest, and recognize the equities of the contracting parties.

### PURPOSE

SEC. 102. It is the purpose of this Act to—

(1) establish and maintain a uniform Federal policy for the management and use of the results of federally sponsored science and technology research and development; and

(2) insure the effective uniform implementation of the provisions of this Act, and to monitor on a continuing basis the impact of Federal science and technology policies on innovation and technology development.

### DEFINITIONS

SEC. 103. As used in this Act the term—

(1) "contract" means any contract, grant, cooperative agreement, commitment, understanding, or other arrangement entered into between any Federal agency and any person where a purpose of the contract is the

conduct of experimental, developmental, or research work. Such term includes any assignment, substitution of parties, or subcontract of any type entered into or executed for the conduct of experimental, developmental, or research work in connection with the performance of that contract;

(2) "contractor" means any person or other entity that is a party to the contract;

(3) "disclosure" means a written statement sufficiently complete as to technical detail to convey to one skilled in the art to which the invention pertains a clear understanding of the nature, ~~purpose,~~ operation, and, to the extent known, the physical, chemical, or electrical characteristics of the invention;

(4) "Federal agency" means an "executive agency" as defined by section 105 of title 4, United States Code, and the military departments as defined by section 102 of title 4, United States Code;

(5) "Government" means the Government of the United States of America;

(6) "invention" means any invention, discovery, innovation, or improvement which is or may reasonably be patentable subject matter as defined in title 35, United States Code;

(7) "inventor" means any person, other than a contractor, who has made an invention under a contract but who has not agreed to assign his rights in such invention to the contractor;

(8) "made under the contract" or "made under a contract" when used in relation to any invention means the conception or first actual reduction to practice of such invention in the course of any work under the contract or under a contract, respectively;

(9) "nonprofit organization" means universities and other institutions of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)) and exempt from taxation under section 501(a) of the Internal Revenue Code of 1954 (26 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a State nonprofit organization statute;

(10) "person" means any individual, partnership, corporation, association, institution, or other entity;

(11) "practical application" means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system, and, in each case, under such conditions as to establish that the invention is being worked and that its benefits are available to the

curement, containing in 13 CFR 121.3-8, and in subcontracting, contained in 13 CFR 121.3-12, will be used.

(12) "nonprofit organization" means universities and other institutions of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)) or any nonprofit scientific or educational organiztion qualified under a State nonprofit organization statute.

## TITLE II—IMPLEMENTATION

### SEC. 201. RESPONSIBILITIES.

(a) The Secretary of Commerce, hereinafter referred to as the Secretary, shall coordinate, direct, and review the implementation and administration of the Federal policy set forth in this Act with respect to the ownership of inventions resulting from federally sponsored research and development, and promote the efficient and effective utilization of the results of federally sponsored research and development.

(b) With a view to obtaining consistent application of the policies of this Act, the Secretary is authorized and directed—

(b) With a view to obtaining consistent application of the policies of this Act, the Secretary is authorized and directed—

(1) to consult and advise with Federal agencies concerning the effective implementation and operation of the policies, purposes, and objectives of this Act;

(2) in consultation with the Office of Federal Procurement Policy, to formulate and recommend to the President such proposed rules, regulations, and procedures as are necessary and desirable to assure the consistent application of the provisions of this Act;

(3) to accumulate, analyze, and disseminate data necessary to evaluate the administration and effectiveness of the policies set forth in this Act;

(4) to determine with administrative finality, in an expeditious manner without unnecessary delay, any dispute between a Federal agency and an aggrieved party arising under title III of this Act; and

(5) to perform such other duties as may be prescribed by the President or by statute.

(c) For the purpose of assuring the effective management of Government-owned inventions, the Secretary is authorized to—

and promoting the effective utilization of any such invention;

(3) evaluate, with the assistance of the originating agency, Government-owned inventions in order to identify those inventions with the greatest commercial potential and to promote the development of inventions so identified;

(4) assist the Federal agencies in seeking protection and maintaining inventions in foreign countries, including the payment of fees and costs connected therewith;

(5) consult and advise Federal agencies as to areas of science and technology research and development with potential for commercial utilization; and

(6) receive funds from fees, royalties, sales, or other management of Government-owned inventions authorized under this Act: *Provided, however,* That such funds will be used only for the purpose of this Act.

(d) The Secretary shall submit an annual report of its activities to Congress, including therein (1) relevant statistical data regarding the disposition of invention disclosures resulting from federally funded research and development; (2) any recommendation as to legislative or administrative changes necessary to better achieve the policy and purposes

### EXPIRATION

SEC. 202. The authorities conferred upon the Secretary under this title shall expire 7 years following the effective date of this Act, unless renewed by action of Congress.

## TITLE III—ALLOCATIONS OF RIGHTS—GOVERNMENT CONTRACTORS

### RIGHTS OF THE GOVERNMENT

SEC. 301. (a) Each Federal agency shall acquire on behalf of the United States, at the time of entering into a contract, title to any invention made under the contract of a Federal agency if the agency determines that—

(1) the services of the contractor are for the operation of Federal research and development centers, including Government-owned research or production facilities;

(2) following a finding by a Government authority which is authorized by statute or Executive order to conduct foreign intelligence or counterintelligence activities, the restriction or elimination of the right of the contractor to retain title to any subject invention is necessary to protect the security of such activities;

(3) in exceptional circumstances, restriction or elimination of the right of the contractor to retain title to any subject invention will better promote the policy and objectives of this Act; and

the right to retain title to any subject invention is necessary to protect the security of such activities;

(3) in exceptional circumstances when it is determined by the agency that restriction or elimination of the right to retain title to any subject invention will better promote the policy and objectives of this Act.

(5) the principal purpose of the contract is to develop or improve products, processes, or methods which will be required for use by Government regulations:

*Provided, however,* That the Federal agency may subsequently waive all or any part of the rights of the United States under this section to such invention in conformity with the provisions of section 303.

(b) The rights of the Government under subsection (a) shall not be exercised by the Federal agency unless it determines that one of the enumerated criteria exist and it files a determination statement with the Secretary.

### SEC. 302. RIGHTS OF THE CONTRACTOR.

(a) In all other situations not specified in section 301, the contractor or inventor shall have the option of retaining title to any invention made under the contract. Such rights shall be subject to the limitations set forth in section 304 and the provisions of section 305. Said option shall be exercised by notifying the Government at the time of disclosure of the make, use, and sell the invention throughout the world by or on behalf of the United States and States and domestic municipal governments, unless the agency determines that it would not be in the public interest to acquire the license for the States and domestic municipal governments.

RIGHTS OF THE CONTRACTOR

SEC. 302. (a) Whenever a contractor enters into a contract with a Federal agency other than in those circumstances identified in section 301(a), the contractor or inventor shall have the option of retaining title to any invention made under the contract. Such rights shall be subject to the limitations set forth in section 304 and the provisions of section 305. Such option shall be exercised by notifying the Government at the time of disclosure of the invention or within such time thereafter as may be provided in the contract. The Government shall obtain title to any invention for which this option is not exercised.

(b) When the Government obtains title to an invention under section 301, the contractor shall retain a nonexclusive, royalty-free license which shall be revocable only to the extent necessary for the Government to grant an exclusive license.

(2) promoting the commercial utilization of such inventions;

(3) encouraging participation by private persons in the Government-sponsored experimental, developmental, or research programs; and

(4) fostering competition and preventing undue market concentration or the creation or maintenance of other situations inconsistent with the antitrust laws.

### SEC. 304. MARCH-IN-RIGHTS.

(a) Where a contractor has retained title to an invention under section 302 or 303, the Federal agency shall have the right, pursuant to regulations and subject to the provisions of subsection (b), to—

(1) require the contractor to grant a nonexclusive, partially exclusive, or exclusive license to a responsible applicant or applicants, upon terms reasonable under the circumstances, or to require an assignment of title to the Government if the agency determines such action is necessary because the contractor has not filed a patent application on the invention within a reasonable period of time or has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the invention; or

(2) require the contractor to grant a nonexclusive, partially exclusive, or exclusive license to a responsible

### MARCH-IN-RIGHTS

SEC. 304. (a) Where a contractor has elected to retain title to an invention under section 302 or 303, the Federal agency shall have the right, pursuant to regulations and subject to the provisions of subsection (b), to grant, or require the contractor to grant, a nonexclusive, partially exclusive, or exclusive license to a responsible applicant or applicants, upon terms reasonable under the circumstances, if the agency determines such action is necessary—

(1) because the contractor has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the invention;

(2) to alleviate serious health or safety needs which are not reasonably satisfied by the contractor, or its licensees;

(3) to meet requirements for public use specified by Federal regulation which are not reasonably satisfied by the contractor or its licensees; or

(4) because the actions of the contractor beyond the exercise of the exclusive rights in the invention have tended substantially to lessen competition or to result in undue market concentration in any section of the United States in any line of commerce to which the technology relates, or to create and maintain other situations inconsistent with the antitrust laws.

**SEC. 305. GENERAL PROVISIONS.**

(a) Each contract entered into by the Government shall contain such terms and conditions as the agency deems appropriate for the protection of the interests of the United States and the general public, including appropriate provisions to—

(1) require periodic written reports at reasonable intervals in the commercial utilization or efforts at obtaining commercial utilization that are being made by the inventor or contractor or their licensees or assignees: *Provided,* That any such information shall be treated by the Federal agency as commercial or financial information obtained from a person and privileged or confidential and not subject to disclosure under the Freedom of Information Act;

(2) reserve to the United States at least an irrevocable, nonexclusive, paid-up license to make, use, and sell the invention throughout the world by or on behalf of the United States and States and domestic municipal governments, unless the agency determines that it would not be in the public interest to acquire the license for the States and domestic municipal governments;

(3) require the timely disclosure by the contractor or inventor to that agency of any invention made under the contract: *Provided,* That Federal agencies are au-

intent to commercialize or otherwise achieve the widespread utilization of the invention by the public;

(4) an obligation on the part of the contractor, in the event a United States patent application is filed by or on its behalf or by any assignee of the contractor, to include within the specification of such application and any patent issuing thereon, a statement specifying that the invention was made with Government support and that the Government has certain rights in the invention; and

(5) allow deviation to the minimum rights acquired under section 301 on a class basis in—

(A) contracts involving cosponsored, cost sharing or joint venture research when the contractor is required to make a substantial contribution of funds, facilities, or equipment to the work performed under the contract;

(B) special contracting situations such as Federal price or purchase supports and Federal loan or loan guarantees; and

(C) no deviation under this subsection shall waive in whole or in part, the minimum rights to be secured for the Federal Government set forth in section 304(a)(4).

### SEC. 306. BACKGROUND RIGHTS.

Nothing contained in this Act shall be construed to deprive the owner of any background patent or to such rights as the owner may have thereunder.

### SEC. 307. GOVERNMENT LICENSING AUTHORITY.

(a) A Federal agency may grant exclusive or partially exclusive licenses in any invention to which the Government has acquired title if the agency determines that—

(1) the desired practical application has not been achieved, or is not likely to be achieved within a reasonable period of time by the granting of a nonexclusive license;

(2) exclusive or partially exclusive licensing is a reasonable and necessary incentive to call forth the investment of risk capital to bring the invention to practical application; and

(3) the proposed terms and scope of exclusivity are not greater than reasonably necessary to provide the incentive for bringing the invention to practical application.

## TITLE IV—MISCELLANEOUS

### SEC. 401. REPEAL OF EXISTING STATUTORY RESEARCH AND DEVELOPMENT AUTHORIZATIONS.

The following Acts are hereby amended as follows:

(a) Section 10(a) of the Act of June 29, 1935, as added by title I of the Act of August 14, 1946 (7 U.S.C. 427(a); 60

(3) the proposed terms and scope of exclusivity are not greater than reasonably necessary to provide the incentive for bringing the invention to practical application.

## TITLE IV—MISCELLANEOUS

### REPEAL OF EXISTING STATUTORY RESEARCH AND DEVELOPMENT AUTHORIZATIONS

SEC. 401. The following Acts are hereby amended as follows:

(1) Section 205(a) of the Act of August 14, 1946 (7 U.S.C. 1624(a); 60 Stat. 1090), is amended by striking out the last sentence thereof.

(2) Section 501(c) of the Federal Coal Mine Health and Safety Act of 1969 (30 U.S.C. 951(c); 83 Stat. 742) is amended by striking out the last sentence thereof.

(3) Section 106(c) of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1395(c); 80 Stat. 721) is repealed.

(4) Section 12 of the National Science Foundation Act of 1950 (42 U.S.C. 1871(a); 82 Stat. 360) is repealed.

(5) Section 152 of the Atomic Energy Act of 1954 (42 U.S.C. 2182; 68 Stat. 943) is repealed.

(6) The National Aeronautics and Space Act of 1958 (42 U.S.C. 2451 et seq.; 72 Stat. 426) is amended—

(d) Section 106(c) of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1395(c); 80 Stat. 721) is repealed.

(e) Section 12 of the National Science Foundation Act of 1950 (42 U.S.C. 1871(a); 82 Stat. 360) is repealed.

(f) Section 152 of the Atomic Energy Act of 1954 (42 U.S.C. 2182; 68 Stat. 943) is repealed.

(g) The National Aeronautics and Space Act of 1958 (72 Stat. 426) is amended—

(1) by repealing section 305 thereof (42 U.S.C. 2457): *Provided, however,* That subsections (c), (d), and (e) of such section shall continue to be effective with respect to any application for patents in which the written statement referred to in subsection (c) of such section has been filed or requested to be filed by the Commissioner of Patents and Trademarks prior to the effective date of this Act;

(2) by inserting the following new section 305:

"SEC. 305. INVENTIONS AND CONTRIBUTIONS BOARD.—Each proposal for any waiver of patent rights held by the Administrator shall be referred to an Inventions and Contributions Board which shall be established by the Administrator within the Administration. Such Board shall accord to each interested party an opportunity for hearing, and shall transmit to the Administrator its findings of fact porting of any innovation made in the course of or under any contract of the Administration.";

(5) by inserting at the end of section 203 thereof (42 U.S.C. 2478) the following new subsection:

"(d) For the purpose of chapter 17 of title 35 of the United States Code, the Administration shall be considered a defense agency of the United States."; and

(6) by striking out the following in section 203(c)(3) thereof (42 U.S.C. 2473(c)(3)) "(including patents and rights thereunder).".

(g) Section 6 of the Act of July 7, 1960 (30 U.S.C. 666; 74 Stat. 337), is repealed.

(h) Section 4 of the Helium Act Amendments of 1960 (50 U.S.C. 167b; 74 Stat. 920) is amended by striking out both proviso clauses at the end thereof.

(i) Section 32 of the Arms Control and Disarmament Act (22 U.S.C. 2572; 75 Stat. 634) is repealed.

(j) Subsection (e) of section 302 of the Appalachian Regional Development Act of 1965 (40 U.S.C. App. 302(e); 79 Stat. 5) is repealed.

(k) Section 9 of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5908; 88 Stat. 1887) is amended by striking all after "hours" the second time it appears therein, and inserting in lieu thereof a period.

all information, uses, processes, patents, and other developments resulting from such research developed by Government expenditure will (with such exceptions and limitations, if any, as the Secretary may find to be necessary in the interest of national defense) be available to the general public: *And provided further,* That nothing contained herein shall be construed as to deprive the owner of any background patent relating thereto to such rights as he may have thereunder." and by inserting in lieu thereof a period.

(j) Section 32 of the Arms Control and Disarmament Act of 1961 (22 U.S.C. 2572; 75 Stat. 634) is repealed.

(k) Subsection (e) of section 302 of the Appalachian Regional Development Act of 1965 (40 U.S.C. App. 302(e); 79 Stat. 5) is repealed.

(l) Subsection (e) of section 203 of the Solid Waste Disposal Act (42 U.S.C. 3253(c); 70 Stat. 997) is repealed.

(m) Section 216 of title 38, United States Code, is amended by striking out subsection (a)(2) thereof and by redesignating subsection (a)(3) thereof as (a)(2).

(n) Except for paragraph (1) of section 9 of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5901; 88 Stat. 1878) is repealed.

(o) Section 3 of the Act of June 22, 1976 (42 U.S.C. 1959d, note; 90 Stat. 694), is repealed.

Senator GORTON. Senator, do you have a statement?

Senator KASTEN. Mr. Chairman, I am pleased to have the opportunity to introduce Mr. Bob Benson of Allis-Chalmers. Mr. Benson has a distinguished record of activity in the area of patent policy. Most recently, he participated in former President Carter's Advisory Committee on Industrial Innovation, serving as Chairman of the Subcommittee on Patent and Information Policy. I'm pleased, Bob, that you'll be sharing the results of your group's study. I'm sure this committee's end product will benefit from your insights and recommendations. And I'd like to personally thank you for taking the time to appear before this committee today.

## STATEMENT OF ROBERT BENSON, DIRECTOR, PATENT LAW DEPARTMENT, ALLIS-CHALMERS, MILWAUKEE, WIS.

Mr. BENSON. Thank you, Mr. Chairman and Senator Kasten. My name is Robert Benson, from Milwaukee, Wis. I have been practicing patent law for over 27 years. I am a past chairman of the Patent, Trademark and Copyright Law Section of the American Bar Association, and I served as chairman of the Advisory Subcommittee of Patents of President Carter's Domestic Policy Review on Industrial Innovation. I have also been active in other bar associations, as set forth in the attached biographical sketch.

I have been asked to testify initially about the findings and recommendations of the Patent Advisory Subcommittee of the Domestic Policy Review on Industrial Innovation, as they relate to Federal patent policy. This advisory committee was not made up of just patent attorneys, although there were a number of patent attorneys on the committee. In addition to the patent attorneys, there was a director of research of a major U.S. corporation, there were a number of independent inventors, there were small businessmen who had taken inventions from scratch and had made a success out of them. So this was not the report of another group of patent attorneys.

As you know, the development of a system of transferring the commercial rights to the results of Government sponsored research and development to the private sector was one of the primary recommendations of our subcommittee. I've set forth the full text of that portion of the committee report as an appendix to my statement. I will limit my comments to some of the more significant portions of that recommendation.

The members of our committee were very clearly against the idea of the U.S. Government owning any patents. The nature of Government activity is such that it does not need the right to exclude people from using its inventions. The patent grant which gives the patent owner the right to exclude others from using his patented invention is normally used during the period of time that the patent owner is developing a market for the product. Since the Government is not in the business of marketing products, it has no need for these rights. The Government only needs to retain a paid-up license to practice the inventions.

Under all of the proposals that I have seen on this subject, such a reservation is made. Our committee concluded unanimously that if the Government's goal is to increase the Government-owned technology that is incorporated in products which actually get to the marketplace, then it must find a way to transfer the rights to this technology to people in the private sector in a sufficiently attractive form that it would induce members of the private sector to make the necessary additional investments required to commercialize the technology.

Clearly the preference of our committee was that the rights in the Government patents be assigned totally to a party in the private sector who has expressed an interest in commercializing the invention. Any restrictions which are put on the grant detract from the overall incentive and could be the difference in having the invention utilized at all. The term of a patent is only 17 years, which is really a very short time in the history of the country. When you compare that with what copyright owners get—life plus 50 years—it's really very minimal recognition of the inventor's contribution.

Many inventions are not commercialized in that period of time, in spite of efforts to do so. In other cases, patents and technology become obsolete before the patents expire. Therefore, the concept of march-in rights or any other way or means or procedure of taking back the title is a disincentive to commercializing Government inventions and technology. However, in my opinion, it would be a very rare circumstance in which march-in rights would have to be exercised. I think that the experience we have had so far with march-in rights indicates that it is indeed a very, very rare case in which there would be any need to use march-in rights.

President Carter, in his statement on the results of his study, proposed exclusive field of use licenses for Government-owned patents in lieu of title. This feature appeared in the administration bill in the last Congress. Our committee felt that exclusive licenses were much less desirable than title to patents for the reasons set forth in the committee report. In addition, the administration program of exclusive licenses would create a great number of administrative problems, not the least of which is the determination of who is going to enforce the exclusive license? Is the Government going to go around suing its citizens on behalf of a licensee such as, for example, IBM?

As far as we were concerned, the granting of title to Government-owned patents to the people in the private sector was a very small price to pay for the potential benefit to both the Government and the public.

You mentioned in your opening statement that the bill has already been passed establishing a precedent for small business and universities. I believe experience under this bill will show the effectiveness of this policy. But what I am concerned about is that it is limited to a narrow segment in the private sector. Some of the very important skills that are needed to bring inventions to the marketplace are exactly the skills which lie within the large corporations. For example, taking a very embryonic concept and developing it to a point where it becomes commercially acceptable and salable in the marketplace is a skill which resides in more mature corporations in many instances. Furthermore, the marketing skill itself, the organization which gets products to the marketplace so they are used again, is in place in many corporations. They are in a position to do the job. For that reason, this philosophy of granting titles should be extended to all corporations.

Our committee was aware of the claim that is frequently made about large windfall profits that are likely to result from the granting of title to inventions resulting from Government research and development. We think that such claims are very misleading, particularly when you consider the alternative—that is, that the technology remains unused. If a party does acquire title to a Government patent and in fact makes a substantial profit through its use, the benefits to the Government are substantial. The Government receives 48 percent of the profit in the form of taxes, and this turns out to be a very satisfactory royalty rate. In addition, citizens receive the benefit of products which otherwise would not be made available to them. Additional jobs are created, which in turn result in the tax benefits to the Government because of the income tax paid by the employees.

Just how much of a return is the Government entitled to for the utilization of its technology that would not otherwise be used? Our committee was informed that the Government owned approximately 30,000 patents and that less than 10 percent were being used. In your opening statement you indicated that your information indicated that less than 5 percent were being used. Even in areas where the contractor took title. This is a very poor performance that would not be tolerated in most commercial organizations.

Our committee felt very strongly that the Government could and should make better decisions as to the inventions on which they seek patent protection. In determining whether to file a patent application, the Government should give much greater weight to the potential commercial utilization of inventions. I did note that in your proposal there were one two paragraphs that were specifically directed to working with the various agencies to place a greater emphasis on what inventions would be filed. Our report also pointed out that 3 percent of the workload in the Patent and Trademark Office is due to the filing of patent applications on Government-owned inventions. A reduction in the number of these applications based on a more significant commercial decision would have a corresponding significant impact on the workload in the Patent Office. The number of patent applications would be down and, it would free up examiners to work on commercially important inventions. This could be one of the most significant fallout benefits of your proposal.

The bill infers that we're talking about greater utilization of Government technology. The present text deals primarily with transferring of patent rights but much of the value of the Government-owned technology is not patentable and would not automatically be transferred to the licenses. Some consideration should be given to the transferring of related supportive technology with any transfer of patent rights to parties in the private sector. I understand some aspects of this subject are dealt with in other bills.

The proposed bill does not deal with the inventions of Government employees. Our study indicated that about two-thirds of the U.S. patents emanate from Government employees. Hence, there is a large volume of Government-owned patents which are not covered by the procedures of this bill. Our committee did consider that problem and came up with a number of proposals. About half the committee favored giving the title for such inventions to the employees and letting them do what they would with them. Another group recommended that the inventions be assigned to Government-run corporations, similar to the Connecticut Product Development Corp. However, the direct experience of the members of the committee who actually deal with these problems was that such efforts to sell unused technology rarely produced effective results and were not worth the cost and expense. Many corporations have embarked on such programs in an effort to capitalize on their so-called fallout technology, and have had to abandon the efforts as a failure.

In closing, I applaud your continuing efforts to expand Federal patent policy to include all contractors and all members of the private sector. Our committee would clearly endorse the bill that you are proposing.

Thank you.

Senator GORTON. Thank you very much, Mr. Benson.

You referred, in the course of your testimony, to the consideration which the Government would receive for this kind of transfer; increased corporate income taxes and increased job creation. Nevertheless, I think we do face a certain degree of opposition, based on the proposition that these are valuable rights which simply, under this bill, are given away without any direct consideration whatsoever. Do you feel that the answer which you had given to that question, presumably increased tax collections, is an adequate one? And do you feel, by the same token, that there is no way in which a direct consideration for the transfer of those funds on a royalty basis or otherwise can be required, without subverting the entire purpose of the bill?

Mr. BENSON. It's a long question and the last part of your question is the most difficult.

Senator GORTON. Essentially, should there be some kind of royalty payment based on the profits resulting from the use of these patents?

Mr. BENSON. It really gets down to a commercial determination, doesn't it? The Government has indicated that they have this vast portfolio of patents, that nothing is being done with them, and many people are convinced that it is a total waste. So the goal is to try to get this technology used. And how do you get it used? You don't get it used, obviously, by offering it to people on a nonexclusive basis, because we've had years of experience with that and we know that doesn't work. So what will work?

Well, the greater the incentive to the people who can bring the technology to the market, the more likely it is that the program will work.

If you get right down to the question of can you have a policy with some form of royalty payments and that sort of thing, then it's a question of how much will somebody pay for a license, for example, in the form of reasonable royalties. Such a license may still be sufficiently attractive to get people to spend their own money to bring the licensed invention to the market. You can have exclusive licensing under commercial patents now.

Senator GORTON. So it's possible for the system to work?

Mr. **Benson**. Certainly.

Senator **Gorton**. Do you have any evidence which agencies which grant title to contractors such as NASA, the Department of Defense and the like, have any better record of successfully transferring technology than do agencies with more restrictive policies such as DOD?

Mr. **Benson**. I think you are going to have someone testify later to that point, who has had extensive experience in that area.

Senator **Gorton**. What is the Connecticut Product Development Corp., and what kind of experience has it had in commercializing inventions?

Mr. **Benson**. It's a corporation which is set up to provide seed money to corporations to develop and market their inventions in exchange for some payback on the royalty or share of the profit. They have had some success. It's patterned after an organization which was set up in England over 20 years ago, which happened to latch on to a couple of very good patents, and turned out to be quite profitable for a few years. But it took them 8 or 10 years before they made a profit.

And now, I don't know what the balance sheet looks like right now—it's like the Wisconsin Research Foundation. If you get a good patent and get a good licensing program under it, certainly it's going to be profitable. But I think that's the exception rather than the rule.

Senator **Gorton**. Finally, the draft bill addresses background rights in a somewhat neutral fashion. Is it your view that a stronger statement on background rights would be appropriate?

Mr. **Benson**. Yes, it is.

And I think that the other thing that your bill really doesn't deal with is the policy of the Federal Government to try to take background technology rights in addition to background patent rights. This in many instances is a greater deterrent to qualified contractors' taking Government contracts than the policy relating to patent rights.

Senator **Gorton**. Will you submit specific suggestions for changes in the proposed bill?

Mr. **Benson**. I will do that.

Senator **Gorton**. Thank you.

Senator Kasten?

Senator **Kasten**. Thank you. First of all, I am pleased to have you here. As all of you know, Allis-Chalmers is in Milwaukee, and I have had a fine working relationship with them.

I noted your work on the Advisory Committee on Industrial Innovation. I have had a chance to review some of those recommendations. I think the recommendations went to the heart of some of the questions raised by some of the opponents to the legislation which we are talking about.

I am particularly impressed with your committee's rebuttal of the notion that extending patent rights to private firms developing new technology under Federal R. & D. money is somehow robbing the Government, and therefore robbing the taxpayer. I'd like for you, if you could, just to expand on that a little bit.

Mr. **Benson**. As we pointed out in the report, the phrase "What the Government pays for, they get." And I expand on that by pointing out that what they were getting was precious little. They got technology which went on the shelf and is not used. If the technology is not used, nobody benefits from it; whereas if it gets into the hands of people in the private sector, and they put their money and efforts into it to develop it so that it actually gets to the marketplace, than everyone benefits. People receive the benefit of the new products, the creation of new businesses, and new jobs.

So basically our philosophy is that if the technology is good, it should be used. It wasn't being used, and this is a way to get it used.

Senator **Kasten**. You said, in another part of the report, that the crux of the issue really is the question, what instrumentalities can be brought to bear to maximize the possibilities that people will indeed have available the fruits of their Government's expenditures? To me that was a particularly meaningful idea, that what we want to do is to maximize those possibilities.

Mr. **Benson**. Yes. That's why I mentioned earlier that any disincentive that would discourage the taking of the business risk to commercialize that technology—detracts from that overall goal.

Senator **Kasten**. Speaking for Allis-Chalmers, your company, to what extent do you pursue federally sponsored research and development?

Mr. **Benson**. We pursue it in certain cases. In other cases, we refuse to participate—depending, to a great deal, on what the project is, how much we have in the way of proprietary background technology. I mentioned earlier that one problem which is not dealt with here is the problem that the Government insists on taking rights to the privately funded technology of corporations as a quid pro quo for the granting of a contract.

We're selective. There are times when we do Government R. & D. work, but there are a number of other times when we just refuse to.

Senator **Kasten**. Thank you, Mr. Chairman.

Senator **Gorton**. Thank you very much, Mr. Benson.

[The attachment referred to follows:]

## APPENDIX.—TRANSFER COMMERCIAL RIGHTS TO GOVERNMENT-SUPPORTED RESEARCH TO PRIVATE SECTOR

The United States patent system is designed to stimulate the progress of the useful arts by encouraging the public disclosure of new technology and making available to the public new products and processes utilizing this technology. It is not necessary to go through the expensive, time-consuming procedure of obtaining a patent to fulfill the function of disclosing information to the public. This can be accomplished by a simple publication. On the other hand, the patent grant has played an important part in commercializing inventions, making new products available to the public. The Federal Government does not normally participate in this function.

The theory of the patent grant is to give the inventor or his assignee the exclusive rights to his invention for a period of time so that he can invest the time and money necessary, commercialize the invention and develop a market for the product or process incorporating the invention. Since the government is not in the business of developing inventions for commercial use, it has no need to own patents. On the other hand, the government is a substantial user of products and services and in that context needs, or at least can benefit from, a license to use patents.

Experience has shown that the government, as a purchaser or consumer of goods and services, is not in a position to take advantage of its ownership of patents to promote enterprise. Private companies, on the other hand, who are in a position to utilize the patent grant are ordinarily unwilling to take a nonexclusive license under a government-owned patent and commit the necessary funds to develop the invention, since it has no protection from competition. This is a major reason that over 90 percent of all government patents are not used. Another important reason is that the government obtains patents on technology which, in the opinion of the private sector, does not provide an attractive business opportunity.

Several years ago, the Federal Council for Science and Technology supported the most thorough study ever conducted on the issue of government patents, commonly referred to as the Harbridge House Report. The following findings were included in the report:

Government ownership of patents with an offer of free public use does not alone result in commercialization of research results.

A low, overall commercial utilization rate of goverment-generated inventions has been achieved; that rate doubled, however, when contractors with commercial background positions were allowed to keep exclusive commercial rights to the inventions.

"Windfall profits" do not result from contractors retaining title to such inventions.

Little or no anti-competitive effect resulted from contractor ownership of inventions because contractors normally licensed such technology, and where they did not, alternative technologies were available.

The idea that what the government pays for belongs to the people is not only appealing, it is true. The question is: What instrumentalities can be brought to bear to maximize the possibilities that the people will indeed have available the fruits of their government's expenditures? Nonexclusive licenses to undeveloped inventions, offered by the government or anyone, have few takers, whereas patent ownership or exclusive licenses of sufficient duration are much more likely to attract the money and talent needed to make and market real products to meet consumer needs.

If the results of federally sponsored R&D do not reach the consumer in the form of tangible benefits, the government has not completed its job and has not been a good steward of the taxpayers' money. The right to exclude others conferred by a patent, or an exclusive license under a patent, may be the only incentive great enough to induce the investment needed for development and marketing or products. Such commercial utilization of the results of government-sponsored research would insure that the public would receive its benefits in the way of products more jobs, more income, etc. The cost of government funding will be recovered from the taxes paid by the workers and their companies. Therefore, all the members of this subcommittee recommend transferring the patent rights on the results of government-sponsored research to the private sector for commercialization. In the case of university or private contractor work sponsored by the government, the members of this subcommittee recommend that title to the patents should go to the university or private contractor, but some members feel the government should have "march-in-rights" (i.e., when the invention is not being used and it appears that there is a public need to use the invention, the government would have the right to transfer patent righs to those in the private sector willing to use the invention). With respect to inventions made by government employees at government expense, the subcommittee members are divided about equally between those who feel that the government employee should have title to the invention, and those who feel that such inventions should be transferred to an independent, non-governmental organization, perhaps modeled after the Connecticut Product Development Corporation, or auctioned to the private sector or transferred to the private sector in some other manner. In all cases, the government would retain a nonexclusive license to use and have made for its use inventions founded in whole or in part by govermental expense.

At the present time, the government has a portfolio of 25,000 to 30,000 unexpired patents. These include patents arising as a result of research and development work in government laboratories by government employees, and also from work done by non-government employees wherein the government retained title because it funded the work. In fiscal 1976, 2,646 patients issued to the government, of which 1,824 were for inventions by government employees.

Considerable sums of money are involved in government patent ownership, the patent budgets of the various government agencies including funding for patent attorneys, supporting staff and equipment being in the millions of dollars.

Our information indicates that the United States government has been filing in excess of 3,000 United States patent applications per year, which amounts to approximately 3 percent of the total workload in the United States Patent and Trademark Office. A decision not to file patent applications on behalf of the government would result in the PTO having available 3 percent of its total capability that could be directed to reducing the backlog in the PTO and handling special problems that have been created by the new reissue program and the anticipated reexaminination procedures. In addition, this decision would save the government patent attorneys who normally prepare and prosecute the patent applications and the cost of having patent applications prepared by attorneys in private practice. Time and money thus saved could be utilized to provide needed services in other areas of the government.

According to this subcommittee's proposals, the decisions to file a patent application would be made by the university or contractor; in the case of inventions made by government employees at government expense, the decision to file would be made by the employee, if he were to retain title, or by the independent nongovernmental organization (suggested above), which would obtain title to the patent.

The subcommittee recognizes the argument that the government applies for patents to preserve its right to institute an interference with patent applications from the private sector. However, such interferences are a very rare occurrence under present practices. Furthermore, establishment of prior invention by the government would generally constitute a defense in an infringement suit on the basis of prior invention. Prior invention may not be an adequate defense in instances where the government has not reduced the invention to practice, or has, for good reasons, kept the invention secret; special legislation may be required to provide adequate protection to permit royalty-free govnerment use in such instances.

Senator GORTON. We have now been called to a roll call. Nevertheless, if the next panel, Mr. Riley and Mr. Jancin, is here, if they will come forward—I think because it's relatively short, we can probably put into the record at least Mr. Riley's statement, and then go forward for a few more minutes.

Mr. Riley, you may proceed.

## STATEMENTS OF WILLIAM E. RILEY, PRESIDENT, LICENSING EXECUTIVES SOCIETY INC. (U.S.A. AND CANADA) AND DIRECTOR, MARKETING, BATTELLE DEVELOPMENT CORP., COLUMBUS, OHIO; AND JULIUS JANCIN, JR., PRESIDENT-ELECT, AMERICAN PATENT LAW ASSOCIATION AND DIRECTOR, PATENTS, IBM, ARLINGTON, VA.

Mr. RILEY. Thank you, Mr. Chairman. Mr. Chairman, Senator Kasten, as president of the Licensing Executive Society, U.S.A./Canada, I appreciate the opportunity to present our views on the subject proposed legislation.

The members of our society and the organizations they represent will be directly and seriously affected by the outcome of your investigation and the subsequent actions of Congress in this regard. The Licensing Executive Society, U.S.A./Canada, which I shall subsequently refer to as LES, is a nonprofit professional and educational association comprised of members actively involved in the field of technology development and transfer. We are a business-oriented society of about 1800 members from industry, law firms, research institutes, and various Government organizations. We have sister LES societies in many countries throughout the world. It has been estimated that LES members are involved in over 85 percent of worldwide technology transfer.

Basically, Mr. Chairman, LES is unequivocally in support of the principle that Government contractors be given a full title to any inventions developed with the use of Government funds, regardless of the contractor's size or organizational status. Except in unusual circumstances, we believe this tenet to be equitable, and one that would help restore U.S. innovative leadership.

Although the position expressed above is the official one of LES, I believe it important to take a minute to explain my background, so as to put my comments in perspective. I am not an attorney. My present position is director of marketing for the Battelle Development Corp., which is a wholly owned subsidiary of the Battelle Memorial Institute, the world's largest contract research and development organization. The Development Corp. has the responsibility of licensing Battelle-owned technology. This technology includes what is developed through the investment of Battelle resources, and also inventions developed by Government research to which Battelle has legal rights.

Before joining Battelle Development Corp., I was a member of the Battelle research staff, and spent a considerable portion of that period in marketing research and development programs to various U.S. Government agencies. Thus, although others today are more qualified to address the strictly legal aspects of the legislation, I am not uncomfortable in discussing the problems relating to the handling of inventions and the development of Government research contracts or grants.

The following are my opinions:

To claim that the present Government patent policy is the cause of the lag in U.S. innovation is hyperbolic. However, there can be little argument that it is a cause. Indeed, it is probably a major factor, and therefore, if it can be remedied without harming the public good, it should be.

Also, to claim the lack of assured patent rights is driving present Government contractors out of the research market is stretching the point. Some organizations have been successful as a primary result of Government contracts, and to many others, Government research represents an attractive business opportunity. Most of these would not cease to seek Government contracts if they are not granted title to resultant patents. However, it is very likely that a more liberal patent right policy would make Government contracting potentially much more attractive and thus result in more competition for Government R. & D. That would be a healthy situation.

In the case of manufacturers, they would be much more motivated to make the large investment necessary to bring an invention to commercialization if they had assurance their investment would not be jeopardized by bureaucratic whims or by an artificially established time period that could prove entirely unrealistic.

As regards universities and manufacturing and research organizations, they are much more capable of interesting third-party manufacturers in investing in the commercialization of inventions than are Federal agencies, who have had no hand in the technical development.

If we agree that private control of patents resulting from Government contracts would stimulate innovation, it makes no sense whatsoever to deny such control to organizations strictly because of their size or because they do not meet Government requirements established for reasons that have no direct relationship to technology development and commercialization. The latter refers to such things as the IRS 501(c)(3) definition and the requirements to be considered as small business.

It has been argued that established corporations tend to concentrate too much on increasing profitability while neglecting innovation. There is undoubtedly some truth in that premise. On the other hand, there can be no argument against the fact that these organizations possess one of this country's greatest assets of technical talent, and have the resources necessary to bring technology to the public. They certainly should be encouraged to do so.

In summary, Mr. Chairman, LES fully supports retention of full patent rights by contractors who do Government-sponsored R. & D. Further, we believe that the extension of such rights to all organizations is a much-needed followthrough to the positive momentum that was established by the patent legislation that went into effect July 1 of this year.

Thank you, Mr. Chairman, for the opportunity to present our views.

Senator GORTON. Thank you very much. At this point we will have to recess, in order to attend a roll call. We will hope to have someone back here to continue with Mr. Jancin and to ask questions of Mr. Riley in about 15 minutes.

[Recess.]

Senator SCHMITT (presiding). The hearing will come to order. I understand, Mr. Riley, that you have completed your testimony.

Mr. RILEY. Yes, sir.

Senator SCHMITT. Why don't we proceed, then, with Mr. Jancin. I apologize to you both for not being here to start the hearings. Unfortunately the Senate is doing too many things, as it usually does, and we'll just have to do the best we can.

Proceed, Mr. Jancin. If necessary—I have not had a chance to scan your statement, but if you could summarize it, it would be very helpful to us; and highlight the points that are important to you.

Mr. JANCIN. I will, Mr. Chairman. I have a prepared statement that I would appreciate having entered into the hearing record.

Senator SCHMITT. Without objection, it will be part of our record.

Mr. JANCIN. I appear here today in my capacity as president-elect of the American Patent Law Association, which is a national society of lawyers engaged in the practice of law pertaining to intellectual property rights. Our members, being at the leading edge of all technologies, well recognize the incentives contained in the patent system—and the realization that these incentives encourage industrial innovation and new product commercialization.

The APLA supports the draft Federal patent policy legislation that has been developed under your leadership, and welcomes the opportunity to testify today in support of a draft bill that, hopefully, will be introduced soon for early favorable action by the 97th Congress.

Existing policy must be changed. The debate over Federal patent policy has endured long enough. The time has come to try a policy that can maximize incentive to commercialize invention, a policy such as proposed in the draft bill under which a contractor can retain title to inventions made in the performance of Federal contract work, and the Government can obtain an irrevocable, worldwide, royalty-free license to practice such inventions for its governmental purposes.

The 96th Congress resolved only a small portion of this R. & D.-related problem when it acted favorably on Public Law 96-517. The 97th Congress can complete the job. The enactment of the draft bill will be in the national interest. Its enactment should produce favorable results in addition to meeting the policy objectives recited in section 101.

For example, greater and faster commercialization of inventions resulting from research, development, and experimentation that had been carried out by the invention developer through wholly or partly funded Federal procurement activity, that often has been helped by the developers 'expertise resulting from earlier privately funded R. & D. activity.

Accordingly, more and better commercial advances involving such inventions of direct benefit to the American public.

Next, coupled with recently enacted Public Law 96-517, a strengthening of the research and development capabilities within American universities and all businesses.

A realistically uniform Federal patent policy.

Correspondingly, a positive impact on innovation through such a uniform, clear, and more certain governmentwide approach to patent policy.

And finally, encouraging climate for invention disclosure and its form of technology transfer because of decreased administrative burden, speedier invention processing, and more certain disposition of invention rights.

The lack of such uniform patent policy impacts negatively upon industrial innovation, and a decline in innovation threatens economic expansion and technological superiority of the United States.

Testimony before this subcommittee relative to a predecessor bill, S. 1215, reveals impressive statistics that show a declining proportion of gross national product devoted to R. & D. in the United States, while increasing in Japan and Germany; a growing share of U.S. patents issued to foreign applicants; capital investment growing more slowly in the United States than it is elsewhere; and often a deteriorating U.S. trading position. We believe that a rational, sensible Government patent policy should address the real issues that confront the R. & D. sponsoring agencies, rather than the emotional issues.

The problems are not those of windfall, giveaway, suppression, or adverse competitive effect; they are rather those of first providing the Government with what it needs to perform its mission, next encouraging commercial utilization of the results of Government-sponsored or participated research so that the public will receive the benefit of such commercial utilization, and third reducing the administrative workload for both the Government and contractors to the extent consistent with the overall public interest.

Typically, patent incentive encourages private development of Government-funded inventions for benefit of the public. Nonexclusive licenses to undeveloped inventions offered by the Government or anyone have few takers, whereas patent ownership to invention-creating contractors are much more likely to attract the money, know-how, and talent needed to make and market real products to meet consumer needs.

A proper Federal patent policy should put real-world economics first. It should be based on the premise that if the results of federally sponsored R. & D. do not reach the consumer in the form of tangible benefits, the Government has not completed its job and has not been a good steward of the taxpayers money.

We submit that the Government investment will be returned ordinarily in the form of taxes paid; an increase in the labor force through creation of new jobs; and the transfer of technology from a creator to a user, who, in building-block fashion, is likely to be himself a creator in follow-on order.

In conclusion, the APLA supports early enactment of the draft bill. Notwithstanding the three recommendations in the prepared statement to clarify and improve the draft bill, the APLA does support early favorable action by the Senate so that the House can find the time during this 97th Congress to act upon such legislation. The APLA is ready to make its services available to assist the subcommittee and its staff in this matter.

That concludes my statement.

[The statement follows:]

### STATEMENT OF J. JANCIN, JR., PRESIDENT-ELECT, AMERICAN PATENT LAW ASSOCIATION

My name is Jan Jancin. I appear here today in my capacity as President-Elect of the American Patent Law Association (APLA) which is a national society of lawyers engaged in the practice of patent, trademark, copyright, licensing and related fields of law pertaining to industrial, commercial and intellectual property rights. APLA membership includes lawyers in private law firm, corporate and Government practice; lawyers associated with universities, small business and large business; and lawyers active in the international arena as well as with matters of national concern. Our members being at the leading edge of all technologies well recognize the incentives contained in the Patent System, and the realization that these incentives encourage industrial innovation and new product commercialization.

*The APLA supports the draft Federal patent policy legislation that has been developed under the leadership of Senator Schmitt.*—We appreciate having had the opportunity to participate in the development of such legislation in the 95th Congress relative to predecessor Bill S. 3627, in the 96th Congress with respect to the follow-on Bill S. 1215, and welcome the opportunity to testify today in support of a draft Bill that hopefully will be introduced soon for early favorable action by the 97th Congress. This history of legislative activity shows that the draft Bill has not been hastily drawn. Prior APLA suggestions have been adopted, and in the spirit of continuing to be helpful, a few additional recommendations are offered in the Appendix to this testimony.

*Existing policy must be changed.*—The debate over Federal patent policy has endured long enough. During this period of discussion, the United States has experienced a decline in innovation. An official of the present Administration recently testified before the Senate Committee on the Judiciary to corroborate this point by saying:

"For far too many years, American industrial innovation has not kept pace with our foreign competitors. We are losing our traditional technological leadership, and the symptoms of this decline are obvious to economists, Government planners, industrialists and the public. For fifteen years, the percentage of GNP annually invested in R&D has decreased. Our share of the world's export markets for high-technology goods is dropping. Our markets are flooded with imports. Our greatest resources, scientific and production expertise, are failing us. There is no single answer. One thing, however, we must immediately begin to do. Large and small businesses must be encouraged to channel a larger share of profits, manpower and investment capital into research and the development of commercial products."

The time has come to try a policy that can maximize incentive to commercialize invention—a policy such as proposed in the draft Bill under which a Contractor can retain title to inventions made in the performance of Federal contract work, and the Government can obtain an irrevocable, worldwide, royalty-free license to practice such inventions for its Governmental purposes. The 96th Congress resolved only a small portion of this R&D related problem when it acted favorably on Public Law 96-517. The 97th Congress can complete the job.

*The enactment of the draft bill will be in the national interest.*—Its enactment should produce favorable results in addition to meeting the policy objectives recited in Section 101:

(a) Greater and faster commercialization of inventions resulting from research, development and experimentation that had been carried out by the invention developer through wholly or partly funded Federal procurement activity that often has been helped by the developer's expertise resulting from earlier privately funded R&D activity.

(b) Accordingly, more and better commercial advances involving such inventions of direct benefit to the American public.

(c) Coupled with recently enacted Public Law 96-517, a strengthening of the research & development capabilities within American universities and all businesses.

(d) A realistically uniform Federal Patent Policy.

(e) Correspondingly, a positive impact on innovation through such uniform, clear and more certain Government-wide approach to patent policy.

(f) An encouraging climate for invention disclosure and its form of technology transfer because of decreased administrative burden, speedier invention processing, and more certain disposition of invention rights.

The enactment of the draft Bill under consideration today should bring immediacy, simplicity, rationality, uniformity and certainty to the operation of Government patent policy.

*The lack of such uniform patent policy impacts negatively upon industrial innovation.*—The APLA subscribes to this widely recognized and generally accepted premise which, by way of example, appears as the following statement in the report of the Advisory Committee on Industrial Innovation established as part of the previous Administration's Domestic Policy Review:

"It is important that full advantage is taken of the nation's investment (in technology development) so that the national technological lead is maintained in the world and that innovative ideas and technology are stimulated. . . . This Committee therefore urges the enactment of legislation providing a uniform Government patent policy under which normally a contractor, should he so elect, would retain title to each invention conceived or first actually reduced to practice in the course of development under a Government research and development contract."

*The decline in innovation threatens economic expansion and technological superiority of the United States.*—We believe the operation of Government patent policy to be most critical at this time because of the generally reported decline in innovation. Testimony before this Subcommittee relative to predecessor bill S. 1215 reveals impressive statistics that show a declining proportion of gross national product devoted to R&D in the United States while increasing in Japan and Germany, a growing share of U.S. patents issued to foreign applicants, capital investment growing more slowly in the United States than it is elsewhere, and often a deteriorating U.S. trading position.

*Federal patent policy should be tested by how well it is designed to best solve legitimate Government problems, to maximize commercial utilization and to minimize administrative burden.*—We believe that a rational, sensible Government patent policy should address the real issues that confront the R&D agencies, rather than the emotional issues. The problems are not those of "windfall," "giveaway," "suppression" or adverse competitive effect. They are, rather, those of (1) providing the Government with what it needs to perform its mission, (2) encouraging commercial utilization of the results of Government sponsored or participated research so that the public will receive the benefit of such commercial utilization, and (3) of reducing the administrative work-load for both the Government and Contractors to the extent consistent with the overall public interest.

*Typically patent incentive encourages private development of Government funded inventions for benefit of the public.*—The idea that what the Government pays for belongs to the people is not only appealing, it is true. The question is, however, what instrumentalities can be brought to bear so as to maximize the possibilities that the people will indeed have available the fruits of their Government's expenditures? Non-exclusive licenses to undeveloped inventions, offered by the Government or anyone, have few takers, whereas patent ownership to invention-creating Contractors are much more likely to attract the money, know-how and talent needed to make and market real products to meet consumer needs.

A proper Federal patent policy should put real world economics first. It should be based on the premise that if the results of Federally sponsored R&D do not reach the consumer in the form of tangible benefits, the Government has not completed its job and has not been a good steward of the taxpayer's money. It should recognize that the right to exclude others conferred by a patent may be the only incentive great enough to induce the investment needed for the development and marketing of products. Such a policy couples the power of the patent system with the power of R&D expenditures to meet society's needs.

We submit that the Government's "investment" will be returned ordinarily in the form of taxes paid, an increase in the labor force through creation of new jobs, and the transfer of technology from a creator to a user who in building-block fashion is likely to be himself a creator in follow-on order. If the objective is to stimulate innovation as well as the participation of firms in relatively high risk areas which often involve creation of new products and sometimes new markets for those products, then there should be no limitation on incentive to meet this objective.

*The APLA recommends that the contractor be given a right of sublicense.*—This principle is expressed in Appendix I in the form of a suggested second sentence within Section 302(b) of the draft bill. One aspect of the draft legislation that gives cause for pause is the present provision in Section 302(b) that if a contractor elects not to file a patent application on an invention, then the title after having been assigned to the Government, will reserve only a personal license to the contractor. This provision could work a hardship on Contractors who have third party obligations to cross-licensees to make licenses available on all patents arising out of employee inventions. Some provision ought to be made for assuring licenses to those to whom a contractor is obliged to grant them in the event the Government files on a contractor invention. The suggested language in Appendix I will do the job.

*A clarifying amendment is needed in march-in Section 304.*—We believe that whenever a contractor is using or has made substantial investment leading to the use of an invention, such contractor should continue to retain a non-exclusive license which is the quid pro quo for the investment. We believe that this is the intent of Section 304, and can be clearly made a part of the Section by adding the subsection offered in Appendix II.

A self-explanatory third suggestion appears in Appendix III.

*In conclusion: The APLA supports early enactment of the draft bill.*—Notwithstanding the recommendations that have been made to clarify and improve the draft Bill, the APLA does support early favorable action by the Senate so that the House can find the time during this 97th Congress to act upon such legislation. The APLA is ready to make its services available to assist the Subcommittee and its Staff in this matter.

That concludes my statement. I'll be happy to answer any questions now or later.

## APPENDIX I

*The APLA recommends that contractor's nonexclusive license be coupled with a right of sublicense.*—This principle is expressed below in the form of a suggested second sentence within Section 302(b) of the draft Bill so as to make it more effective:

"Contractor's license to practice the invention, or to have it practiced on contractor's behalf, shall include the right to grant sublicenses of the same scope to subsidiaries and affiliates within the corporate structure of contractor's organization, and to existing licensees whom contractor is legally obligated to sublicense or assure freedom from infringement liability."

## APPENDIX II

*A clarifying amendment to march-in rights Section 304 of the draft bill.*—Section 304 deals with march-in rights. We believe that whenever a contractor is using or has made substantial investment leading to the use of an invention, such contractor should continue to retain a non-exclusinve license which is the quid pro quo for the investment. We believe that this is the intent of the Section, and can be clearly made a part of Section 304 by adding the following subsection:

"A contractor whose title to an invention has been affected pursuant to the exercise of authority granted in Section 304(a) shall retain an irrevocable, non-exclusive and royalty-free license under such invention if such contractor is using, or has made substantial investment leading to the use of, the invention. An example of such use is making the invention available to others for licensing on reasonable terms and conditions."

## APPENDIX III

*Subsection 305(a)(2) as drafted could act, in certain narrow circumstances, as a serious barrier to the development and commercialization of practical and useful inventions, and thus be counter-productive to achieving the purposes of the act.*—Our fear goes to products invented or improved, the nature of which limit the potential buyers to Governmental entities; for example, highway safety devices and equipment. If the statute provides that the potential purchasers of these new products are reserved a paid up license to make, use, and sell the invention, there will be a serious chilling effect on including a private manufacturer to invest capital to develop the product to the point of commercialization.

We recommend that the Contractor have the right to petition the Government agency to withhold this grant of rights to State or municipal governments, "if the agency determines that such a grant would substantially interfere with the commercialization of the patented invention". While this standard is more narrow than "not in the public interest" currently in the draft Bill, we think it more precisely identifies the public interest in the context of the proposed legislation and, therefore, in the few meritorious cases which are likely to arise, would be more attainable.

Senator SCHMITT. Thank you, sir. If it hasn't been mentioned previously, it should be mentioned that we do expect to have joint hearings with the House in the not-too-distant future, but right now we are working more or less in lockstep with them, and hopefully a joint bill will be introduced in the two Houses in the not-too-distant future. So I remain optimistic that something will happen in this session.

Mr. Riley, in your testimony you say that if companies which presently pursue Government R. & D. contracts are denied full title, they will continue to pursue those contracts regardless. I suspect to a certain degree that is true, since they have in the past. Would you not also assume that these same contractors will continue to commercialize the inventions at an infrequent rate, though, as a result of current policies, non-DOD policies?

Mr. RILEY. Yes, sir. In general I would assume that. However, under the new proposed legislation I believe you would see an increased activity even by those companies. That's my supposition.

Senator SCHMITT. What about an influx of new companies? Would the legislation have any impact at all, or is it still going to be the same old guys?

Mr. RILEY. In my opinion it will attract high technology companies that are not now participating, or whose participation in Government R. & D. contracts is negligible. There are certain companies that have a reputation for being the leaders in innovation that are not extremely active in Government R. & D. If there was an incentive, such as would exist under the present legislation, they would be motivated to become more so.

Senator SCHMITT. Do you know of any companies who have a stated policy of not bidding significantly on Government contracts, because of the lack of title?

Mr. RILEY. No, sir, I can't name any that I know have a stated policy. However, you can tell by reading annual reports that there are companies, such as 3M or perhaps Eastman Kodak, that are not, let's say, overwhelmingly active in the field of Government research. Yet they have a reputation for being innovative. Also, many of these are very patent-conscious organizations.

Senator SCHMITT. Mr. Jancin, in your testimony you say that unless the benefits of federally sponsored R. & D. reach the consumer the Government has not been a good steward of the taxpayer's money. I couldn't agree more, obviously; but how, then, do you really answer those who call placing title in the contractor a Government giveaway. Your statement says all the good things about it's not true, but that is a very popular populist kind of approach. It placed the very superficial aspects of technology development by the Government in a negative light—how do you respond to that?

Mr. JANCIN. I think a good deal of that form of emotional rhetoric falls in the category of "Yes it is, no it ain't." I don't know whether people who espouse that position on giveaway can really be convinced. I believe it to be true that if an invention simply sits on the shelf and isn't utilized, if it doesn't come to commercial fruition, then it doesn't do anyone any good. On the other hand, if it can be commercialized, if it can be brought to a practical application then the public does benefit.

Senator SCHMITT. But it's giveaway demagoguery that has kept us from enacting patent policy up to this present time. Literally that's true.

Mr. JANCIN. I don't question that. I understand. The substantive answer that occurs to me is that for the 30 years that we have been following the policy practice which we now have, it's really not worked. Certainly I think that the approach in your bill is worthy of a trial.

Senator SCHMITT. Is there any statistical measure of the odds of our particular invention being commercialized versus not being commercialized. Is there any measure of that—a semicredited measure of that?

Mr. JANCIN. There have been some studies, and I am sure that they've been brought to your attention, with the hearings relative to your predecessor bills. The so-called Harbridge House study. Such data has been requested again and again, and it really is awfully hard to come by. I believe that in testimony that was made before your subcommittee on S. 1215 there were some witnesses who were able to show that even though the numbers were very small, that those inventions for which waiver was granted resulted in twice as many finding their way into the commercial stream.

Senator SCHMITT. But you know of no new information other than what we've already received?

Mr. JANCIN. I don't, and I'll be glad to volunteer to pursue that, to see if there is anything. And if there is, I will bring it to the attention of the staff.

Senator SCHMITT. We'd appreciate that very much.

Mr. Riley, if you happen to run across anything, that would be appreciated also.

Mr. Jancin, what exactly are the nature of the third party relationships you referred to. Is there any expansion of that?

Mr. JANCIN. That's in connection with the APLA appendix I?

Senator SCHMITT. Yes.

Mr. JANCIN. OK. Appendix I, in plain English, states the following: that if under the draft bill, the Government were to take title to an invention, as it has the right to in certain circumstances, that the contractor would be left with a residue license to practice the invention and would also be permitted to sublicense others that the contractor was obliged to sublicense, principally because of commercial contracts, the cross-licensing type contracts that the contractor may have with the third parties.

I might point out that the first three quarters of the recommended language in appendix I is in the regulations that have recently been developed as the result of 96-517, and the latter portion, the last three lines, appeared in the legislative history of H.R. 6933, which is one of the predecessor bills to 96-517. Have I answered your question?

Senator SCHMITT. That's helpful.

Would you envision that there would be an obligation to maintain these sublicensing rights, regardless of whom else you contract with?

Mr. **Jancin**. Yes, to the extent of being able to fulfill the obligation that has been created through third party contracts.

Senator **Schmitt**. What about the Government's granting sublicensee licenses. Would you expect them to be nonexclusive, nonrevokable?

Mr. **Jancin**. Ordinarily the Government's practice at this time is to favor nonexclusive and to favor revokable.

Senator **Schmitt**. Do you think we ought to change that in any way?

Mr. **Jancin**. No. I think that there are times when consideration should be given as to whether a particular license ought to be irrevokable. There are situations that would indicate it to be fair to do so, but I don't have— and I don't think that the APLA has any qualms with the Government being able to license either nonexclusively or partially exclusively, or exclusively, depending upon the situation and the facts.

Senator **Schmitt**. Your comment in Appendix II regarding granting a contractor nonexclusive license after marching in does appear to be consistent with the intent of the bill, as does your concern with licensing municipal governments in Appendix III. Do you have any other examples of when a private manufacturer would be discouraged from commercializing an invention under that clause?

Mr. **Jancin**. I don't at this time, but once again, I'll be glad to build on that and submit data to the staff.

Senator **Schmitt**. Public Law 96-517 did not address the issue of State and municipal governments.

Mr. **Jancin**. That's correct.

Senator **Schmitt**. Do you think this is the preferred treatment, rather than the direction you've proposed? Should we just not address it, or do you think it must be addressed?

Mr. **Jancin**. I don't believe that it must be addressed. I think I'd like to think about that so I can give you a more thoughtful answer.

Senator **Schmitt**. We'd appreciate that, and any other examples of where we may have forgotten an area of activity.

Mr. **Jancin**. I'll be glad to.

Senator **Schmitt**. Now, Mr. Riley, do you have some suggestions as to which fields of endeavor would benefit most by the title assignment provisions that we're proposing?

Mr. **Riley**. Mr. Chairman, I can't say which would benefit the most. Just from my own personal observations. probably the two fields where you wouldn't see much change would be the aerospace industry and the highly capital-intensive side of the energy industry such as oil shale recovery. That is because of the very nature of these types of business. Although patents are important, there are other factors that are just as important, such as market lead time in aerospace and the large amounts of capital generally required by the energy industry.

However, I think that there is a broad spectrum of the high technology companies that might be drawn more and more into bidding on Government contracts and applying their very extensive research and development capabilities to problems if they had the opportunity to put successful results of such research into their normal profit chain. I am not in a position to give you a list of those.

Senator SCHMITT. Thank you, gentlemen. We are going to move on. We appreciate your testimony.

Our next witness is Niels J. Reimers, director of technology licensing, Stanford University. Mr. Reimers?

Please proceed, Mr. Reimers. I understand—yes, here is your testimony. If you wish to summarize or read it, that is your choice. It's not very long.

## STATEMENT OF NEIL J. REIMERS, DIRECTOR OF TECHNOLOGY LICENSING, STANFORD UNIVERSITY, STANFORD, CALIF.

Mr. REIMERS. Thank you.

I was an advocate of S. 414, the University and Small Business Patent Procedures Act, which act was overwhelmingly passed by the Senate and became law in December of 1980. Large business was not included in that act, primarily because it appeared that to do so would greatly risk passage of that act for any constituency. The benefits to the public of a uniform Federal patent policy, however, apply to research results of all contractors, whether universities, small business, or large business.

The bill this committee is now considering effectively adds large business, a concept which I support as a matter of equity and for reasons which follow. First, the largest contributors to our Nation's overseas sales are certainly large business. It makes little sense not to allow such industry the advantage of a patent grant to their own research discoveries when they are competing with foreign industry.

My experience in licensing technology these past 12 years, dealing with U.S. and foreign companies, leads me to assert that if exclusive rights are not granted to U.S. research contractors in their own research, two principal results will occur. First, the technology in question has a severely reduced likelihood of being integrated into a product or process for public use and benefit in the absence of the incentive afforded by a patent grant. Second, the industry perhaps more likely to benefit is foreign industry than U.S. industry. Let me elaborate on this point.

In bringing a research discovery to many U.S. companies, one finds it difficult to overcome what is popularly called the "not invented here" or NIH barrier. This appears to result from the U.S. system of personal incentives.

In contrast, when approaching many foreign firms, particularly Japanese, one finds a system of group incentives. Your technological alternative is looked at objectively, rather than subjectively, and regardless of whether the individuals in that company have worked long and hard on their own technological alternative, they will subordinate their personal egos to what is best for the group. Further, the reputation for Yankee ingenuity is often such that the U.S.-conceived technological alternative will have the edge over internally conceived alternatives.

Let us next look at users of the National Technical Information Service, NTIS. The NTIS is charged with distribution of U.S. technical information, selling 15,000 to 20,000 pieces of technical information per day. About one third are overseas sales with Japan the largest customer. NTIS distribution outlets are established in Japan, England, Germany, and elsewhere. If my prior thesis is correct, then we can assume non-U.S. companies may make greater use of this storehouse of nonexclusive technology than U.S. companies. Further, if research results covered by patents are not exclusively available to the U.S. contractor, we can extrapolate the technology of those patents will as likely, if not more likely, be used by foreign industry than U.S. industry.

While I am supportive of this act, I am concerned that many patents are not utilized by some companies. They are not suppressed; simply not utilized, becoming just one piece of paper among many others. The patent incentive is not given the opportunity to operate. To restore life to such patents, it would be reasonable, for patents covered by this act to provide rights to such patents be waived to their inventors upon request, if after a period of years the technology of the patent is not embodied in a product or process, or a plan to do so is not in being. This should also occur for government employees and so-called GOCO employees. The company or the government could retain shop rights and be recompensed for its patent expenditures.

I also recommend review of certain features of S. 414, such as preference for U.S. industry in exclusive licenses, for inclusion in this bill. There may also be reasons that different terms for different types of contractors would make sense in this bill.

I thank you for this opportunity to testify. If my testimony has raised any questions, I'll be pleased to endeavor to respond. I do have some data on our success ratio for licensing inventions of Government research if you'd like to hear that.

Senator SCHMITT. If you could submit that, I would appreciate that very much. It would be one of the questions I was going to ask. Can you summarize it?

Mr. REIMERS. In a paragraph, we received 142 inventions last year. This year it's about the same. That's approximately one every other working day. We take on for patenting and licensing about 25 percent. Our success record of those we take on is about 50 percent.

Senator SCHMITT. That's over a 2-year period that you're looking at?

Mr. REIMERS. We were looking at about a 5- or 6-year period. That runs through about 1976 or 1977. At this particular moment we are having somewhat of a technological explosion. I don't know what's causing it, but we're having double our normal rate of discoveries and the quality is much higher than before. It's occurred in two principal areas. One is in information technology. The other is in molecular biology.

Senator SCHMITT. Interesting.

You mentioned in your testimony two points having to do with the creation of protections against the bureaucracy, if you will, of corporate America from sitting on patents as the bureaucracy of Government America sits on patents. Can you be more specific on how those kinds of protections might be made enforceable? You set some criteria, but I have a feeling that they might be the subject of great litigation and joy on the part of the patent lawyers.

Mr. **Reimers**. They could be. Perhaps it may be best to simply avoid that problem, but we have people from companies that do come to our university to study. I often hear from them their frustration that some invention that they had simply gathers dust at their company. They talk to their patent department and they say, "Well, we may need this in the future." But there is no incentive for the company to bring it forward. The patent is held perhaps for defensive reasons. In some cases these patents could be very useful for a small company or for the genesis of a new company. It may be off line to the product interest of a larger company.

So it would seem that perhaps after a period of, say, 5 years, that if a company is not planning to develop the technology that's covered by the patent, or doesn't have any plans to do so, why not waive it to the inventor?

Senator **Schmitt**. Can you always assign an inventor to a patent?

Mr. **Reimers**. We usually have multiple inventors on a patent. I'd say about two-thirds of the time there's more than one inventor, often a professor and a graduate student.

Senator **Schmitt**. Do you think that that determination can be made without undo contest among the people within the corporation?

Mr. **Reimers**. I think you'd perhaps have to have the corporate people best respond to that. I think if they have good relations with their employees and if they retain shop rights, I would think that they would be protected from having a patent being used against themselves.

Senator **Schmitt**. Well, I would think if we pursue that, and we will, we're going to have to come up with some fairly specific criteria to be applied so that we don't open up a vast new area for litigation. I'm sympathetic with what you say, because I know corporate America can be as bureaucratic or more so than Government America. But still, I think we have to be careful that we don't do more harm than good, just by the litigation that becomes possible.

Mr. **Reimers**. Absolutely.

Senator **Schmitt**. Any further ideas you may have on that subject we'd appreciate.

Have you seen any direct effect, as yet, of S. 414 having been passed on university activity in patentable inventions?

Mr. **Reimers**. Not yet, because the implementing regulations are still subject to some negotiation. In some respects we may have been better off before if a current provision in the implementing regulations is continued.

Senator **Schmitt**. Have you submitted comments on the implementing regulations yet?

Mr. **Reimers**. We have until September 1. We definitely will, and most universities will.

Senator **Schmitt**. Could you submit your comments, also? Just send us copies. We'd like to see those. We are concerned about some of those items also.

Mr. **Reimers**. Sure.

Senator Schmitt. The examination of those regulations may show us what we have to be more precise about in this bill.

Mr. Reimers. Sure.

Senator Schmitt. Do we use the inventions that develop in other countries as much as they use ours?

Mr. Reimers. I think there have been some important inventions developed in other countries that have been used here in the United States. I'm thinking particularly of the soft contact lens, which I believe was developed in Hungary or Czechoslovakia.

Senator Schmitt. But what about generally? Is the flow of new ideas away from our borders generally?

Mr. Reimers. I think it's perhaps away from our borders—I certainly haven't done a study; there are others here that may be more qualified to respond. But it's not clear to me that the results of research funded by the Governments of France and Japan and elsewhere are as freely available to U.S. industry as the results of our research are available to foreign industry.

Perhaps part of the problem is that Congress laid upon NTIS the need to recover its own expenses and so have been aggressive about selling.

Senator Schmitt. Do you think the enactment of provisions comparable to what's in the draft bill being discussed today would retard the loss of information from the U.S. inventions and information?

Mr. Reimers. I believe so. The patent grant would be held by the U.S. company which developed the technology. Perhaps 90 percent of the world's technology that is licensed is a fully developed technology—where the patent is a relatively small factor—what it takes to operate a chemical plant, that sort of thing.

The other portion, the licensing of undeveloped technology, depends quite a bit more on the patent incentive. And I believe that if U.S. contractors could control patents of their own research, they would also be able to control more of the use of their own technology, even though some of it may be made available through the NTIS—and we'll see the advantage accruing to the U.S. taxpayer.

Senator Schmitt. Do you see this bill changing the current situation, which I understand is now such that you can expect to have a patent infringement suit of some kind on a patent and run about a 50-percent chance of losing that suit? That's, I think, the testimony we had last year, that the chances are not very good of protecting a patent against infringement, and it will cost you $500,000 right off the top to make the defense.

Mr. Reimers. Obviously, if somebody holds exclusive rights, they're going to be more inclined to defend those exclusive rights than if they have a nonexclusive license. As to whether this bill will do anything to change that 50-percent rate, I'm not sure, although as many have mentioned, the good patents are not contested. It's the ones that have been on the fence of questionable validity that are contested anyway, which is one of the reasons why there's a 50-percent rate.

Senator Schmitt. There's been a suggestion that one of the reasons it's so difficult to defend is that the basic patent definition in research has been poor, and support from the Patent Office has been inadequate. It's not necessarily their fault, but inadequate due to the resources of that office fails to provide a good basis for the defense of a patent.

Do you think we ought to in any way deal with that issue in this bill?

Mr. **Reimers**. I believe there's other legislation, which is in being, intended to cover that problem. I think the Patent Office has done a terrific job with their limited resources, but they certainly can use greater resources. I understand a lot of their documents are simply missing when you need to check out a patent.

There are others, particularly Homer Blair, who will be speaking next, who can speak more to the other legislation that's being considered.

I believe that's right. In S. 414 there was this reexamination proceeding which may be helpful. I don't know whether you're intending to add that to this bill or not. Is that what you're driving at?

Senator **Schmitt**. We're looking for recommendations. You do support that reexamination?

Mr. **Reimers**. Yes. I'm not a patent attorney and patent attorneys can probably speak better to that. Usually our patents are the product of basic discoveries and patent positions often are fairly strong. We haven't had that much difficulty in terms of being challenged in the marketplace.

Senator **Schmitt**. Finally, opponents of granting patent rights to large companies have charged that companies will use the patent rights to extract monopolistic profits from taxpayers who paid for the research. How do you respond to this since you apparently support granting them the rights? I might add before you answer though, that you've used the term "large corporations," "large companies."

Really, the existing law, S. 414, only covers about 10 percent of the corporate activities or company activity in the country—well, let's say, research and development activity in the country. So we're really talking about mostly medium-sized companies. Obviously, large corporations will benefit. But you know as well as I do that they tend to move more slowly on these kind of issues than do the smaller entrepreneurial activities that would not be classified as small business under S. 414.

Mr. **Reimers**. Certainly I would agree with that claim. It could also apply to small business, too, or universities. It's simply that that argument doesn't sell as well to the public. It's much easier to castigate perhaps the larger companies and, as you point out, it applies a lot to medium-sized companies.

Senator **Schmitt**. Is that the whole idea of the system, to try to get out ahead of the competition with a better product?

Mr. **Reimers**. Sure. I'm not aware of any situation where monopolistic profits have been extorted. Generally, whether a product succeeds in the marketplace depends much less on the patent grant, much more on the quality of the product and the marketing of the company.

And as you can't patent a physical principle, you're only covering one technological alternative. The taxpayer, except in very rare circumstances, always has another product to buy that's not covered by the patent.

In fact, it might even be healthy if there were examples that could be brought forward by the opponents of the bill, where there were extortion of monopolistic profits, because at least it would show that the system is working.

Senator SCHMITT. It would be helpful. I don't think we received any such testimony.

Well, thank you, Mr. Reimers. We appreciate your testimony.

Senator SCHMITT. Our next witnesses come as a panel, representing industry, Auzville Jackson, National Association of Manufacturers; Derek Lawrence, Patent Counsel for the General Electric Co.; and Holmer Blair, vice president, Patents and Licenses at ITEK.

Would you gentlemen come forward.

Mr. Jackson, would you present your testimony. Depending on the length of the testimony, I would appreciate it if you'd try to summarize since we must complete this activity before 12 o'clock and we could be interrupted by a vote at any time. So you may be cut short. So summarize, make your major points. Then I hope I'll have some time for questions.

Mr. Jackson.

## STATEMENTS OF AUZVILLE JACKSON, JR., NATIONAL ASSOCIATION OF MANUFACTURERS; DEREK LAWRENCE, PATENT COUNSEL, GENERAL ELECTRIC CO.; AND HOMER O. BLAIR, VICE PRESIDENT, PATENTS AND LICENSING, ITEK CORP.

Mr. JACKSON. I am Auzville Jackson, Jr., of Richmond, Va.

I want to thank you, Mr. Chairman, for inviting us to present the position of the National Association of Manufacturers on the proposed legislation we're discussing this morning.

Personally, I am vice president for Technology and Patents of Robertshaw Controls Co., a medium-sized control company, having annual sales of approximately $360 million, with approximately 10,000 employees.

My duties with Robertshaw primarily involve corporate responsibility for technology, product assurance, and patents with a large role in strategic planning and the implementation of those plans with new business units either grown internally or grown through mergers and acquisitions.

Through these duties, I have a large exposure to the entrepreneurial community including the investment community, such as investment banks and venture capitalists. I have devoted almost all of my adult life, over 30 years, to the innovative processes, starting as a patent examiner, then a patent adviser in the Office of Naval Research, patent council of a major aluminum company, and then my present position. I have been chairman of the engineering section at the Virginia Academy of Science and I am presently chairman of the patent subcommittee of the Industrial Research Institute. Also, I'm on the advisory council of the Office of Technology Assessment relating to a review of the patent system that is presently going on.

We have prepared written testimony and I would like that introduced into the record. I'll just make a couple of comments relating to it.

One is we strongly endorse the draft bill. We do have several minor comments—I would say preferences—that we try to avoid having a new bureaucratic structure in the Commerce Department to implement this bill. We do not feel strongly about this, but if you can avoid it, we prefer that you do so.

I would like to make three comments relative to the need for this bill. This bill is long overdue. We should have had it in place all the time.

One is the myth regarding the value of patents. Patents, unless they are commercially utilized, have no value whatsoever. And the accounting principles permit you to write them down to zero when they have no commercial value.

The cost of an invention may be considered as $1. The cost of taking that invention to a manufacturable, embodiment would be approximately $10. The cost of taking it the rest of the way to a manufacturer, market, debug, improve the market, sustain the market until it gets to a black ink situation would be $100.

You can have other figures. Those are the ones that I operate under.

In the written testimony, I believe we say 10 to 20 times the cost of the invention stage is required for the subsequent stages of the innovation process. Therefore, a patent is nothing but an incentive to throw the dice, then follow that long, tortuous, and uncertain road of innovation to try to achieve a commercially profitable product.

The second point I'd like to make is that this bill furnishes incentives for a lot of corporations to do research and development for the government.

At the present time, Robertshaw does no government research and development. And as a general proposition, we're not interested in government research and development. Only 3 percent of our business is related to the government. There are a number of reasons for this, mainly the redtape involved in dealing with the government.

But a most important single element is that we are afraid that our proprietary positions will be weakened by the loss of some patent rights for our ongoing evolution of certain of our commercial lines.

Of course, we're talking about those areas where we're best equipped to help the government with some of its problems. To that extent, the present situation is a disincentive for companies such as Robertshaw to deal with the government.

With the passage of a bill such as proposed this morning, that disincentive would be taken away.

A third point I would like to make is something to do with the NIH factor. This is a common phenomenon that industry is familiar with and stands for "not invented here." It's a common phenomenon that an invention that one inventing entity makes is, with only a great deal of difficulty, transferred to another entity for utilization. It is a problem between companies; it is a problem between divisions of the same company; and it is a problem between the central research and development group and the manufacturing divisions.

The most productive and efficient way to take the invention all the way through to commercial reality is to do it within the same entity. To that extent, if the contractor retained his patent rights, that would be the most productive and efficient route to achieve the commercialization of that technology.

That concludes the oral remarks I would like to make. I'd be glad to try to answer any questions later on.

[The statement follows:]

## STATEMENT OF THE NATIONAL ASSOCIATION OF MANUFACTURERS

The National Association of Manufacturers (NAM) is a voluntary membership organization of more than 12,000 companies and is affiliated with an additional 158,000 businesses through the Associations Department and the National Industrial Council encompassing all sizes and classifications of industry in every state. Together these companies produce approximately 80 percent of the goods manufactured and represent 85 percent of the industrial workforce in the United States. Among NAM memberships, some 80 percent can be classified as small businesses. This statement is being made on behalf of the NAM by its Committee on Innovation, Technology and Science Policy and Task Force on Intellectual Property Legislation.

Most of our members use and rely on patents in one form or another, and the NAM has long had an official policy on patents, which is as follows:

"The patent laws of the United States have contributed greatly to the high standard of living of our people and to our world leadership in modern technology. The incentives of our American system of patents are vital to our continuing industrial growth as well as to the establishment and success of new ventures. The property represented by a valid patent should stand before the law on a par with other property and should be accorded the same legal protection. In keeping with these principles, and in order to encourage prompt use of worthwhile inventions, the rights of patent owners to license their patents in whole or in part, for specified territories, times, amounts or uses must be preserved in the public interest, but we are opposed to compulsory licensing as destructive of the 'exclusive right' which is the entire property secured by a patent under the Constitution."

Thus, the NAM, as the leading association for manufacturing companies, is unequivocally supportive of patents and their owner(s). In addition, the NAM patent policy reflects the Association's views on patent rights under government research and development contracts, which is:

"The incentives of the American system of patents are vital to our continuing industrial growth and leadership in modern technology. Consequently, it should be the basic policy of the Federal Government as to its contracts for research and development that the contractor should retain the commercial and foreign rights in inventions made in the performance of the contract subject to a royalty-free, nonexclusive license to the Government for governmental purposes; provided that any such license should not convey any right to the Government to manufacture or use any invention for the purpose of providing services or supplies to the general public in competition with the contractor or the contractor's commercial licenses in the licensed fields."

As yet, such a policy position has not been reflected in either a generalized federal government patent policy—nor in the patent policies of the various government agencies which support research and development out of which might flow patentable inventions. Agency policies are many, are often complex, duplicative or even at odds. That complexity and insecurity have had a dampening effect on invention and industrial innovation, an effect we are all too well aware of. In considering the Uniform Science and Technology Research and Development Utilization Act, we are pleased to note that in contrast to a recently enacted law in the same general area, this bill does not limit its provisions to specific sectors of our economy such as small business, the universities, or non-profit institutions.

Although NAM has a majority membership of small businesses, we are concerned about special kinds of patent legislation that would fragment the private sector into categories. While acknowledging the plight of small businesses today, especially as they are confronted with indiscriminate and burdensome regulations, taxation and antitrust prohibitions, we would favor legislation which addresses problems faced by all of the private sector at one time or another, in one form or another.

The nature of government contracting in the research and development area and its attendant patent problems are as much a disincentive for the large manufacturing entity as for the small business. Each, in its own way, can become immersed in a bureaucratic mire in servicing the contractual needs of government in research and development.

In considering the whole area of patents—and cutting through the sometimes intractable legal technicalities that often attend the matter—we are impelled to go back to the 1966 Report of the President's Commission on the Patent System, "To Promote the Progress of . . . Useful Arts—In an Age of Exploding Technology." The phrase "to promote the progress of . . . useful arts" is of course derived from the great Constitutional mandate concerning patents. That is undisputed. And we cannot but be even more aware today that if 1966 was "an age of exploding technology," then surely we are now in an area in which that phrase has taken on more force than ever over the past 20 or more years.

Yet, as we read that Commission report, then, and again as we read it today, there is one phrase therein that seems to have an almost prescient connotation. On page 2 of that Commission report, we read:

"The members of the Commission unanimously agreed that a patent system today is capable of continuing to provide an incentive to research, development, and innovation."

We would draw that conclusion today more emphatically than ever—surely, we are more seriously and urgently faced with a need to stimulate and encourage invention and innovation to meet national and international needs. We are more than ever pressed to improve our productivity from inventions so that we can maintain—let alone improve—the standard of living for everyone, and even more urgently to control and dampen inflation.

We have noted that of the 28,000 to 30,000 patents owned by the Federal government, something less than 4 percent (according to some reports) have been licensed to private producers. This represents an unacceptable stagnation of undeveloped technology in a nation in which there is an apparent slowdown in innovation. It is especially serious when there is extensive evidence that U.S. manufacturing industry has proven capability to move quickly and very creatively in successfully innovating.

Innovation does not derive from research and development alone. Innovation requires much more—beginning with the recognition of a potentially marketable product, followed by the decisions to begin the processes of product development, tooling, manufacturing, and final marketing. It is the decision to go forward with these processes that requires the commitments of large sums of money, often at considerable risk of failure. Various studies estimate that the money required for development of an invention or discovery is from 10 to 20 times the cost of making that invention.

In an article entitled "Improving the Climate for Innovation—What Government and Industry Can Do" (Research Management, September 1976), the former Comptroller General of the United States, Elmer B. Staats, took patents as an example of whether Federal funds are being spent wisely in the public interest, such as to stimulate innovation. "Some government officials", Mr. Staats says, "believe that the patents derived from federally funded R & D must be owned and controlled by the Government. However, in most cases, the public interest may best be served when private industrial contractors, with a few provisos, are granted exclusive licenses for commercial development."

The NAM concurs in that conclusion.

In the Domestic Policy Review of Industrial Innovation instigated by President Carter and conducted by the Department of Commerce, seven issues were addressed as having an impact on innovative processes. Among those seven issues was patent policy. The Draft Report (dated December 20, 1978) of the Advisory Subcommittee on Patent and Information Policy of the Advisory Committee on Industrial Innovation, established as part of the Domestic Policy Review, drew some important conclusions about transferring commercial rights of government-sponsored research to the private sector. In proposal V of that document, the following is stated:

"The idea that what the government pays for belongs to the people is not only appealing, it is true. The question is: What instrumentalities can be brought to bear to maximize the possibilities that people will indeed have available the fruits of their government's expenditures? Nonexclusive licenses to *undeveloped* inventions, offered by the government or anyone, have few takers, whereas patent ownership or exclusive licenses of sufficient duration are much more likely to attract the money and talent needed to make and market real products to meet consumer needs." [Emphasis in original]

Further, the report stated that: "If the results of federally sponsored R & D do not reach the consumer in the form of tangible benefits, the government has not completed its job and has not been a good steward of the taxpayers' money. The right to exclude others conferred by a patent, or an exclusive license under a patent, *may be the only incentive great enough to induce investment needed for development and marketing of products.* Such commercial utilization of the results of government-sponsored research would insure that the public would receive its *benefits in the way of products and services, more jobs, more income, etc. The cost of government funding will be recovered from the taxes paid by the workers and their companies.* [Emphasis added]

Thus, all members of the Advisory Subcommittee on Patent Information Policy "recommended transferring the patent rights on the results of government sponsored research to the private sector for commercialization." We note here that the Advisory Subcommittee made proposals that very closely paralleled many of the provisions of the Uniform Science and Technology Research and Development Utilization Act. It is not inconsistent with the basic objectives of the NAM policy on this score. Thus we concur strongly with Sec. 101 Findings, and paraticularly with Sec. 101 (3), namely:

(3) Scientific and technological developments and discoveries resulting from work performed with Government contracts constitute a valuable national resource which should be developed in a manner consistent with the public interest and the equities of the respective parties.

We would contend that Federal Government has not administered its contracts in scientific and technological areas as "valuable national resource(s)", nor has it developed the results of those contracts in "a manner consistent with the public interest" or the equities of the respective parties." To the contrary, it seems that the Federal Government has followed the practice of simply doling out money in the expectation of developing "valuable national resource(s)" without any concomitant effort to promote those resources on behalf of the public interest. The proof of that inadequacy, surely, is in the failure of government to commercialize its thousands of patents.

And we would concur in Sec. 101 (5) that "There is a need for the establishment of a flexible Government-wide policy for the management and utilization of the results of federally funded research and development . . ."

We would like to comment on some of the specific provisions of the bill:

In Sec. 201, Responsibilities, we are of the view that giving the responsibility to a single agency to coordinate, direct and review the implementation and administration of the Federal policy set forth in this bill with respect to the Ownership of inventions resulting from federally sponsored research and development could result in an additional layer of bureaucracy. Both those responsibilities and the promotion of efficient and effective utitlization of the results of federally sponsored research and development could be left to each individual agency which best knows and understands the program of its sponsorship of research and development and can best evaluate where utilization of the results of such programs might be most efficient and effective.

We believe that the effedctiveness of individual federal agency responsibilities in promoting commercial development of government owned research and development results has been well demonstrated by the National Aeronautics and Space Administration. Its programs represent excellent experience which can be drawn on in implementing the provisions of this bill.

In Public Law 96–517, each agency has its own responsibilities for promoting the utilization of inventions arising from federally supported research and development. The Comptroller General of the United States is given oversight responsibility but no administrative authority such as is conferred on the Secretary of Commerce by the Uniform Science and Technology Research and Development Utilization Act.

Another provision of that statute is that the Office of Federal Procurement Policy may issue regulations (which it recently has published in the Federal Register) which may be made applicable to federal agencies implementing the "Disposition of Rights" provisions of Public Law 96–517.

We would prefer to see this approach in the Uniform Science and Technology Research and Development Utilization Act. Our concern for the possible creation of additional layers of bureaucracy is best exemplified by Sec. 201(e) of this bill. Establishing interagency committees as are necessary to assist in the review and formulation of rules, regulations, and procedures implementing provisions of this Act, makes for more layers of complexity, bureaucratic delay, and regulation. We believe that if a clear unified patent policy were to be enacted, there would be no need for such interagency committees on such a formal basis. If there needs to be some coordination among particular agencies in implementing patent policy, then it can be instituted as needed, and dispersed on completion of the task.

In the matter of Allocation of Rights [Sec. 301], we would support the provisions of the Rights of Government. Similarly, the bill would have our support on Rights of the Contractor [Sec. 302]. However, we foresee some problems with some of the provisions of Sec. 303 Waiver. We generally applaud the provisions in this section since it is our view that, in principle, this is the way that a waiver should work. Nonetheless, we sense that Sec. 303(4) might be rather inappropriate since it seems to us to be beyond the capability of agencies supporting research and development to deal with "situations inconsistent with the antitrust laws."

In Sec. 304 March-in-Rights, in subsection (b), we believe that there is no need for prior approval of the Secretary of Commerce concerning the exercise of march-in-rights by a Federal agency as described in Sec. 304(a). Again, we would prefer that the particular agency be left to determine the exercise of march-in-rights whenever a situation arises in which they are to be invoked.

Finally, we would especially applaud Sec. 306 Background Rights. Such a provision is at the very core of a successful government-wide patent policy and the involvement of the private sector in its implementation. Without such protection, the likelihood of private sector involvement would be poor indeed.

### SUMMARY

In summary, the NAM looks upon The Uniform Science and Technology Research and Development Utilization Act with favor and, in general would support passage of this legislation. In some of the specific provisions, we are concerned for those that would create a bureaucratic superstructure to implement a government-wide patent policy or complicate the role of individual government agencies in fulfilling the positive thrust of the bill.

Senator SCHMITT. Mr. Lawrence, would you proceed with your testimony.

Mr. LAWRENCE. Mr. Chairman, my name is Derek Lawrence. I am counsel for Patents and Licensing for the Aircraft Engine Group of General Electric Co.

It's a pleasure to be here today and to have the opportunity to tell you of General Electric's strong support for a uniform Government patent policy, where all Government contractors, regardless of size, would receive title to the inventions that they make.

In the old days companies used only their own money to make their inventions. And of course their patents did belong to them. But nowadays the influence of Government is pervasive in technology and research, and in some fields that are important to the national interest, it is not practical anymore to try to develop products without Government participation.

While that aspect has changed, the need of U.S. industry for the protection of patents has not really materially changed. They still remain a major incentive to make the investment required to get inventions from the research stage to the marketplace.

Our experience with Government contracts has shown us that the practice of permitting contractors to retain title to inventions, which does still exist in some agencies—the Department of Defense is the outstanding example—has helped create products that are used throughout this country and provide a very substantial export opportunity in our balance of trade.

I'd like to give you two examples taken from our own company. In the late 1950's, with our own funds, General Electric started investigating the use of electrochemical technology to convert gases into electrical power in a device called the fuel cell. The Government picked this work up, and funded GE's work on fuel cells for the Gemini space program. As a result, there were a number of significant inventions which were patented. While NASA has the option whether or not to do so, in this case they did grant waivers, and General Electric received the title in most instances.

With this protection of ownership, GE invested substantial additional funds. As a result, among the commercially used results today we have gas sensors used in the safety field for sensing carbon monoxide and other noxious gases; water electrolysis equipment for the production of hydrogen and oxygen; and cells which permit us to produce chlorine from brine through electrolysis. Our incentive to do this was due in no small measure to the proprietary base that NASA permitted us to have in that instance.

The second example is in the field of aircraft engines. In the 1960's, General Electric developed for the Air Force the TF-39 engine. This was the first large high bypass fan jet engine ever. It was truly a pioneering effort. In accordance with its practice, DOD retained a paid-up license for itself, but granted GE the right to receive title to the inventions that it had made.

On that basis, General Electric invested huge sums to develop a civilian high bypass engine based on the TF-39. With it, we entered the commercial airliner propulsion market, and until then, that had been one company's market, Mr. Chairman.

As a result of our entry in that market, our CF-6 family of engines powers many of the jumbo jets flying today. And the American public has strong, vigorous competition instead of the virtual monopoly that existed before.

Senator SCHMITT. And many New Mexicans have jobs. I just toured your plant in Albuquerque. You really get a workout, when you shake hands in a machinist shop like that.

Mr. LAWRENCE. Now, there are more factors, obviously, than just the patents, that go into the decision to invest hundreds of millions of dollars to create a new product. But, there's no denying that for American industry, the ownership of the patents is an important factor. They add to our confidence there will be a favorable commercial opportunity, justifying our expenditures. They give us, arguably, the ability to protect what we have invested, and they certainly permit us to engage in licensing and other cooperative relationships—these are an economic fact of life these days—knowing that we can legally exercise control to prevent unrestricted use, often by foreign corporations and foreign governments, of our company's technology. With title, we have these things. In short, big companies like us do need the protection of patents just as much as small companies.

Also, experience has shown that a contractor, again whether big or small, is by far the most likely entity to carry the results of government-funded R. & D. to the marketplace, at least with respect to American companies.

I would like to address very briefly in closing two additional matters. One is the question of whether big companies really do have the flexibility and the resourcefulness of smaller companies in developing new products. GE has an enviable record, I think, of creating new products, and entering new fields. We are, I believe, the most diversified company in America, and possibly the world. We believe we are clear evidence that there is no inherent difference between a large company and a small company on this score.

The second of these is the question of what happens if the contractor gets title but does not bring the invention to the marketplace.

In this connection, we do note that march-in rights may be provided for the government so that they may take appropriate steps to get inventions brought to market if the contractor fails to do so. As long as the Government provides sufficient time to a company, General Electric supports this concept, and believes that it's desirable that the government have this right.

General Electric has had for many years the practice of trying to make unused inventions available to others. We offer licenses to the public under the patents that we have determined we are not going to use. Our reasons are basically the same as those underlying march-in rights: to give unused technology a chance. But I have to say that, just as we understand it to be the case with Government-owned patents, when we don't use our own patents we find that there is very little interest in others, despite positive efforts and an organization that has been in GE for 25 years and has as its sole responsibility to find licensees.

In conclusion, we are convinced that a uniform Government policy which permits all contractors to retain title to the inventions that they have made under contract, subject to appropriate exceptions, is the most productive policy for the American public.

Thank you, sir.

[The statement follows:]

### STATEMENT OF DEREK P. LAWRENCE, COUNSEL-PATENTS AND LICENSING, AIRCRAFT ENGINE GROUP, GENERAL ELECTRIC CO.

Mr. Chairman and members of the subcommittee, my name is Derek Lawrence, and I am Counsel—Patents and Licensing for the Aircraft Engine Group of General Electric Company.

It is a pleasure for me to be here today, and to have the opportunity to tell you of General Electric's support for a uniform Government patent policy under which Government contractors would, in most instances, receive title to contractor inventions.

General Electric believes such a policy will help preserve the incentive and protection that companies of all sizes need if they are to invest in the development and production of new products. Before the Government assumed the role it plays today in technology and research, companies used only the proceeds from sale of their products for their research, and therefore owned their patents without question. This is an important part of what has made it possible for American industry to create and produce the multitude of difference products that it offers today.

Now, though, the role of Government is different and pervasive; in some fields important to the national interest it is not practical to develop products without Government participation. But while that aspect has changed, the need of U.S. industry for protection through patents has not materially changed. Patents remain a significant incentive to industry when it considers the further investment it must make to produce commercial products from the Government-sponsored research. Experience has shown that the practice of permitting contractors to retain title to inventions made under Government contracts (the Department of Defense is the outstanding example that comes to mind) has helped create and provide products which are not only used throughout this country but also constitute a substantial export opportunity favorable to our balance of payments.

Let me give you two examples taken from our Company.

In the late 1950's General Electric started investigating, with its own funds, the use of electrochemical technology to convert gases into electrical power in a device known as a fuel cell.

This work was picked up by the Government which, in the 1960's, funded GE's work on fuel cells for the Gemini space program. A number of significant inventions were patented, and NASA granted waivers so that GE received title in most instances. Armed with the protection of ownership, GE invested substantial additional funds. Today, among the significant commercially-used results, are gas sensors which are used in the safety field for sensing carbon monoxide and other noxious gases, water electrolysis equipment for the production of hydrogen and oxygen, and cells for the production of chlorine from brine, again by electrolysis. Our incentive to do this work was due in no small measure to the proprietary base of inventions that NASA permitted us to have.

The second example is in the field of aircraft engines. In the 1960's General Electric developed for the Air force the TF39 engine, the first large hi-bypass fan jet engine ever—a true pioneering effort. In accordance with its practice, DoD retained a paid-up license, and GE received title to the inventions it made.

On that basis, GE invested very large sums to develop a civilian high-bypass engine based on the TF39, and entered the commercial airliner propulsion market, which until then had been virtually a one-company market. As a result, our CF6 family of engines powers a great many of the jumbo jets flying today.

Obviously, there are more factors than just patents that go into a decision to invest a lot of money to create a new product, but there is no denying that, for American industry, the ownership of inventions and the patents that cover them is one of the important factors in a new product situtíon. Patents add to the businessman's confidence that there will be a favorable commercial opportunity justifying the expenditures involved. They give him the ability to protect his company's investment. They permit him to engage in licensing and other cooperative relationships (and these relationships are an economic fact of life for many products) knowing that he can legally exercise control to prevent unrestricted use of his company's technology to its detriment.

This would not be so if his company didn't own the patent on such products, and the confidence and willingness of management to make the meaningful risk investment required to carry developments to the commercial stage could be affected. In short, big companies like GE need the protection of patents, often as much as small companies. Also, experience has shown that the contractor—again whether big or small—is by far the most likely entity to carry the results of Government-funded R&D to the marketplace.

I would like to address, very briefly, two additional matters germane to this matter. One is the question of whether big companies do, in fact, have the flexibility and the resourcefulness of smaller companies in developing new products. We believe our record at General Electric leaves no doubt on that point—GE has an enviable record of creating new products and entering new fields—as a result, to my knowledge we have become the most diversified company in America and probably the world. We believe we are clear evidence that there is no inherent difference between large companies and small ones in this area.

The second of these matters is the question of what happens if a contractor gets title but does not bring the invention to the marketplace. In this connection, we note that march-in rights may be provided for the Government. The Government thus has the ability to take appropriate steps to get inventions brought to market if the contractor fails to do so. It is desirable that the Government have this right. General Electric and, we understand, a number of other companies, have had, for many years, a practice of trying to make unused inventions available to others. We offer licenses to the public under the patents we have determined that we are not going to use. Our reasons are basically the same as those underlying march-in rights, i.e., to give unused technology the chance to benefit the public. But, just as we understand to be the case with Government-owned patents, there is little interest in our unused patents, despite our positive efforts to find licensees.

In conclusion, we are convinced that a Government patent policy permitting contractors—all contractors—to retain title to inventions made under contract—subject to appropriate exceptions—is the most productive policy for the American public.

Thank you.

Senator SCHMITT. Thank you, Mr. Lawrence.

Mr. Blair?

Mr. BLAIR. Thank you, Mr. Chairman. My name is Homer Blair. I have a statement to submit for the record and I will make some comments about the statement.

I am here representing the Intellectual Property Owners, Inc., which is a nonprofit organization whose purposes and objectives are, among others, to promote and encourage the development and protection of intellectual and industrial property, including patents, trademarks, copyrights, and technical know-how. In part, this is to be done by emphasizing the connection between the economic well-being of the United States and a strong intellectual property system as an incentive to innovation. We think our present policy on inventions made under Government sponsorship for the medium-sized and larger corporations has not provided the incentive necessary to assure the commercial development of the Government-sponsored technology.

Therefore, we support the proposed Uniform Science and Technology Research and Development Utilization Act, and think it provides the necessary solution to the problem.

To give you a little background on myself, to give you better calibration to measure my comments, I have over 25 years in the practice of law involving technology, particularly in patents, trademarks, licensing and technology transfer. I have a degree in chemistry and one in physics, and also one in law, all from the University of Washington in Seattle, Wash. I have been an employee of five U.S. organizations. Presently I am an employee of Itek Corp., where I am vice president for patents and licensing.

Senator SCHMITT. Does that mean patent lawyers have a hard time holding a job, or what?

Mr. BLAIR. Maybe you're right. I have never been smart enough to get a new job that hasn't taken me all the way across the country.

Mr. Riley is president of the Licensing Executive Society. Mr. Reimers is a past president. I am also an LES past president—although I am further in the past than they are. I have been a member of a number of U.S. Government delegations, including one to the Soviet Union and four to the United Nations, on various things relating to intellectual property, patents, trademarks, technology transfer, and so on.

My viewpoint at Itek is colored a little bit by fact that Itek—which I think is true with most U.S. corporations—has received more licenses under the technology of others than we have granted to others. We are a licensee more often than we are a licensor. I think this trend will continue in the future, because of some of the reduction in new product research and development in the United States, and because of the emphasis on foreign technology.

Itek was formed in 1957 as an outgrowth of the Applied Physics Laboratory of Boston University. They developed some very sophisticated large optics for Government customers and formed a company to try to manufacture those items for the Government. So we were initially completely a Government contractor. Now our sales are around $350 million, and about 25 percent of our business is Government contracts versus commercial.

Our Government contracting business is in two fields: One is electronics, the other is in optics. For example, the pictures taken on the surface of Mars and sent back to Earth were taken with Itek equipment.

Senator SCHMITT. The panoramic camera was your camera also, was it not?

Mr. BLAIR. Yes.

We have all heard statements about patents being a monopoly. I don't think they are a monopoly. I think you can see this if you take the basic Bell Telephone invention, where Bell invented the telephone and the Patent Office gave him a patent, which gave him the right to keep someone else from making, selling, and using the telephone. Later on, someone invented the dial telephone and obtained a patent on it, as it was an improvement over the basic telephone. However, neither one of them could actually make, use, and sell a dial telephone. They didn't have a right to do anything, all they had a right to do was to exclude others from doing something.

If Bell wanted to make a dial telephone, it had to get a license from the dial inventor. If the dial inventor wanted to make a dial telephone, he had to get a license from Bell.

You should keep this in mind in the Government patent situation. If you get a title to a patent that is developed under a Government contract, it doesn't give you the right to do anything. It gives you the right to exclude someone else from doing it. Thus, if the Government obtains title, are they really going to exclude someone else from doing anything? Are they going to sue someone and get an injunction saying, "You can't practice under this patent"? I really don't think they are going to do that. Also, as Bob Benson mentioned earlier, I don't think they're going to enforce their patents against infringers to support their own licensees, if their licensee is IBM, GE, or another large corporation.

The patent rights the Government gets very rarely have any know-how associated with them, so what you're attempting to do is license a naked patent. The know-how is either in the hands of the contractor or, sometimes, in the hands of a Government laboratory. But, a licensee is not going to be successful in getting access to that know-how. If there is any know-how in the first place, the contractor is usually the entity that has the know-how and had the most incentive to develop the commercial uses—if he owns the title. Really, what you get when you get the Government license is the fact that they won't sue you. As far as the licensing of Government patents is concerned, people like Mr. Reimers and others who deal with universities know it's quite difficult to license patents, even with some limited know-how, as compared to being able to license it with completely developed know-how. That's what we look for when we're looking for a license from someone else. We want the know-how.

Patents are fine, and they make the license more valuable. However, without the know-how, the patents are not particularly valuable.

Personally, I think Government ownership of patents is a waste of time, and an unnecessary burden on the public. The public must pay for the substantial staffs of Government patent lawyers, who, as Mr. Benson mentioned earlier, tie up approximately 3 percent of the U.S. Patent and Trademark Office obtaining their patents. If there were no Government patents, right there we could get an effective increase in the Patent and Trademark Office budget.

Also, if we eliminated the Government patent lawyers, possibly we could use the money paid the Government patent lawyers to help the trademark operation in the U.S. Patent and Trademark Office. That's one of my theories, anyhow.

We have all heard that the Government——

Senator SCHMITT. Is that a Shakespearean elimination?

Mr. BLAIR. Some of my best friends are Government patent lawyers.

Senator SCHMITT. Were.

Mr. **Blair**. I think there's plenty of opportunity for patent lawyers in industry. At the moment, at least, there's no big surplus like there is with general lawyers.

You have all heard about the large numbers of patents the Government has—28,000, 30,000, whatever. In my opinion, the vast majority of these patents, probably over 90 percent, would not be patented if they had been owned by a commercial organization, because that organization wouldn't have thought it was worthwhile spending the money to get the patent. This doesn't mean that the patent doesn't cover inventions which meet the criteria of the legal and technical aspects of patents. What it means is they don't meet the criteria of the business and marketing aspects of patents.

We, as I think is the case with every patent-owning organization, do not file on large numbers of inventions we get, because they are not going to develop into a product that is worth the effort.

As Mr. Reimers mentioned, at Stanford, they have the same situation: They get a number of discoveries called to their attention. They decide to patent a minority of them, because they don't meet the criteria for getting patents that makes it worthwhile financially.

Senator **Schmitt**. Excuse me for interrupting at this point. Is that a problem in this bill, that if the rights to a patent are in the private sector, that they may not patent it?

Mr. **Blair**. I don't think that's a problem. The bill provides—and I think the present situation provides—that if as a Government contractor decided not to file a patent application on an invention made under a contract, the contractor would call it to the attention of the Government, which may themselves file a patent.

The inventions that the contractor does not file on, are because he doesn't want to spend the money—so he has no objection if the Government decides they want to spend the money; he can't stop the Government from that. But it's not a problem from your legislation's viewpoint.

Senator **Schmitt**. Should we have a period of time in which the contractor has the right, then, to file a patent? If they choose not to, the Government then has a right to file a patent?

Mr. **Blair**. I think there are provisions in the bill that say that now. If you don't file in a certain time, the Government gets the rights, which is fair enough. The ones the manufacturer doesn't file are the ones he just doesn't think are worth it.

We certainly have sent over a number of inventions to the Government, which does get patents on its own on occasion for purposes of publicity-type things more than anything else, that are not worth commercially getting a patent. It may be a good invention, as far as being patentable, but it isn't a good invention commercially.

We have all heard comments about the fear that contractors, particularly large contractors, will suppress all these patents.

Suppression is an interesting thing. You hear lots of theories about it by lots of people. We have all heard about somebody suppressed patents by buying up all the patents, and, therefore, keeping the invention secret—which is kind of interesting to me, because patents are published documents, and you can buy a copy of the patent for 50 cents from the U.S. Patent and Trademark Office.

Now, one could certainly buy pending applications and not let them be issued. If the invention's any good, though, that's pretty risky, because in our world if somebody made a good invention, and there's a need for it, and doesn't do anything about it, sooner or later—probably sooner—somebody else will make the same invention, and they will patent their own invention, which might prevent the first person from doing anything.

In actual practice, I don't think there is a patent suppression problem. I have worked for five companies. I think in nearly every case, most of the times when they have a patent they aren't using, if somebody wants to take a license, we would be more than happy to grant a license—I'll guarantee that's the case at Itek.

Usually you will have a situation where you'll have 10 to 15 patents on one product. We may get a patent on a particular way of handling the paper supply on a phototypesetter. We then get a patent on a better way to handle the paper, which we decide to use, and we don't use the initial patent. That patent by itself probably isn't worth a heck of a lot, and we would be interested in granting a license to somebody usually.

But you're usually just getting a patent on an invention which is usually a small part of the whole product that's being marketed. Products that have any amount of high technology at all rarely have just one patent on that product. So you have to take that into consideration—when you're talking about patents, it's not very often you're going to get one patent for one product; there's usually a package of patents. There will be a number of inventions made by people developing the product.

Mr. Benson made a few comments on the giveaway of patent rights. I'd also like to make a few comments on this, about all those millions of dollars that might be given away to Government contractors. It sounds nice in theory, but I don't really think it's true.

Most of the patents that the Government presently owns are worthless, either because there is no commercial application or there is no know-how to go along with the patent. If these patents are so valuable, they have been available for many years, and frankly, most of the cases in the past you were able to get a license from the Government for free, no extra charge. People did not take licenses.

There's no giveaway because I don't think there is that much to give away, unless you have an opportunity to develop the invention, usually only the contractor is going to have the ability to do that.

In general, I think the proposed legislation is good legislation, and we certainly support it. I have few comments on a couple of specific clauses.

Section 103(8) has the standard definition about "made under the contract," which relates to "the conception or the first actual reduction to practice" of the invention, which makes a rather interesting situation. In theory, an inventor can conceive his invention, file an application in the U.S. Patent and Trademark Office, get his patent issued, have it issued for a number of years, get a contract from the Government, build it for the first time under Government contract, and the Government gets whatever rights the contract provides for.

I think it's a little unfair. In the patent law, there are two types of "reduction to practice." One is the "actual" reduction to practice referred to in the bill. The other is "constructive" reduction to practice, which is the filing of patent application with the Patent and Trademark Office. I frankly would prefer a definition that either said: (1) "the first reduction to practice," leaving out the word "actual," which would mean that if you reduce it to practice by either one of these ways before the contract was granted, you would own the rights. Or, (2) have "conception" be the criterion which determines who owns the title.

Section 201, talking about the responsibility of the Secretary of Commerce, provides that the Secretary would "evaluate" Government-owned inventions in order to identify those inventions with the greatest commercial potential and to promote the development of such inventions identified.

I think it's nearly impossible, and certainly very expensive, for the Secretary of Commerce to attempt to evaluate all these 30,000 presently owned Government patents. I think it would be a waste of money. I think if the patents are worthwhile, the potential licensee normally would find them.

I have one other comment, on section 301(a)(2), which states, in effect, that the Government shall retain title—

> when it is determined by a Government authority which is authorized by statute or Executive order to conduct foreign intelligence or counterintelligence activities that the restriction or elimination of the right to retain title to any such invention is necessary to protect the security of such activities.

I have a little problem understanding the reason for that.

We have a number of very highly classified contracts under which we make inventions. If we wish to get a patent on it, we can file the patent application often through the particular agency, ending up in the U.S. Patent and Trademark Office, which has a security group which can handle any classification. They will examine it as they would with a regular patent application. Of course, all your correspondence is handled on a classified basis. When they have decided that there is allowable subject matter, it is held by the Patent and Trademark Office until the various Government agencies involved decide it should be declassified, which might be many years. Itek has patent applications which were allowed and will not issue in my lifetime. I don't think they should. But my puzzlement is as to why whether we have title or the Government has title has anything to do with national security problems. I have talked to some people in the Central Intelligence Agency and asked them about this, and they're trying to get the right person to explain why it should be the case.

I think it might be that some of the people who supported this clause might not be aware of the way the Patent Office handles these very highly classified products.

I don't really think that's a problem. I don't think it's a security problem, because the patent lawyer preparing the patent application would be cleared with the appropriate security level. The people at Itek are. The Patent Office has their the people cleared, and there's no release of that information until the agency involved said that that is the case.

Thank you, Mr. Chairman.

I'll be happy to answer any questions that you might have.

Senator SCHMITT. Thank you, Mr. Blair.

[The statement follows:]

### STATEMENT OF HOMER O. BLAIR, VICE PRESIDENT, PATENTS AND LICENSING, ITEK CORP., LEXINGTON, MASS.

Mr. Chairman and members of the committee, I am here to represent Intellectual Property Owners, Inc., a non-profit organization whose purposes and objectives are, among others, to promote and encourage the development and protection of intellectual and industrial property, including patents, trademarks, copyrights and technical know-how. In part, this can be done by emphasizing the connection between the economic well-being of the United States and strong intellectual property incentives to innovation.

In its efforts to revitalize its technological drive and regain its technological leadership, our country must use the incentives available in a strong patent system.

Our present policy on inventions made under government sponsorship weakens the patent system and does not provide the incentives necessary to assure the commercial development of Government-sponsored technology.

In my opinion, the proposed Uniform Science and Technology Research and Development Utilization Act provides a necessary solution to this problem.

#### EXPERIENCE AND BACKGROUND

My opinion is based on my experience of over 25 years in the practice of law involving technology and, particularly, in patent, trademark and copyright law and licensing and technology transfer. I have two bachelor degrees, one in chemistry and one in physicis and a J.D. Degree (law), all from the University of Washington in Seattle, Washington.

I have been an employee of five U.S. corporations and I am presently employed at Itek Corporation in Lexington, Massachusetts, where I am Vice President, Patents and Licensing.

I am a Past President of the Licensing Executives Society (U.S.A./Canada) and am the first recipient of the LES Award of Highest Honor. I am, at present, Vice President of The United States Trademark Association. I have been a member of five United States Government Delegations, one to the Soviet Union in 1971 on the US/USSR Exchange on Patent Management and Patent Licensing, two to the United Nations (UNCTAD) in Geneva relating to the Role of the Industrial Property System in the Transfer of Technology, one to the United Nations (Economic Commission for Europe) in Geneva relating to a Manual on Licensing Procedure and one to the United Nations (World Intellectual Property Organization) on the Establishment of a Guide on the Organization of Industrial Property Activities of Enterprises of Developing Countries. I have also been a U.S. Government-designated consultant to the United Nations (WIPO) on Trademarks, Consumers and Developing Countries. I am also a member of the U.S. State Department Advisory Committee on International Intellectual Property.

#### THE VIEWPOINT OF THE RECIPIENT OF TECHNOLOGY (LICENSEE)

Among other things, my views are based on the fact that Itek Corporation, as is true with most U.S. corporations, has received more licenses under the technology of others than we have granted to others under our technology. This trend will increase in the future because of the reduction of new product research and development at U.S. corporations, which means that they must receive more of their new product technology from outside sources.

Thus, I and my peers spend more time evaluating the patent rights of others than we do evaluating our own patent rights.

#### BRIEF DESCRIPTION OF ITEK CORP.

Itek was formed in 1957 as an out-growth of the Applied Physics Laboratory of Boston University. This group had developed some very sophisticated large optics for Government customers and were encouraged by these customers to form a manufacturing organization for manufacturing these complex lenses and mirrors. Thus, when Itek was originally formed, it was formed as a Government contractor.

Today, Itek is not as large as the Fortune 500 corporations, but we are considerably larger than small business, having annual sales of about $350,000,000 per year. About 25 percent of these annual sales are in the Government contracting business, with the remainder of our sales being in various commercial markets.

Our Government contracting business is made up of two primary categories. The first is large sophisticated optics and electro-optics. One example of our products, of which you are aware, are the photographs taken on the surface of Mars by the Viking lander. These photographs were taken by Itek cameras and transmitted back to Earth by Itek equipment.

Also, many of the aerial photographs taken from the Apollo Space Capsule as it circled the moon were taken with Itek cameras. As you recall, you saw the astronauts go outside the capsule to recover the film from Itek cameras to bring back to Earth.

The other part of our Government contracting is in electronic counter-measures, including radar homing and warning. We make equipment which is placed on fighter planes and which will tell the pilot when someone is watching him on radar or when a missile is fired at him. This equipment will give him real-time warnings so that he may take adequate evasive action.

## CURRENT GOVERNMENT PATENT POLICY

For a number of years, there has been much discussion relating to Government patent policy. A considerable amount of legislation has been considered with very little being passed except for Public Law 96–517, passed on December 12, 1980, which relates to small business, universities, and non-profit organizations. With respect to other organizations, however, each Government agency has its own policy. Some are required to have a particular policy by legislation, such as NASA and the Department of Energy.

A useful approach is that set forth in last Congress in the Schmitt-Stevenson Bill S. 1215, and the proposed "Uniform Science and Technology Research and Development Utilization Act, where, in most cases, title would reside in the contractor with, of course, the Government having a royalty-free license for its own purposes. In general, I support the policy set forth in these bills.

## ARE PATENTS A MONOPOLY?

Contrary to statements often appearing in print, patents are not a "monopoly" to do anything. Patents give you the right to exclude others from practicing your inventions.

This important distinction can be understood as follows: When Alexander Graham Bell got his original patent on the telephone, he got a legal right to keep others from making, using or selling a telephone. Later someone else invested, and got a patent on, a dial telephone which gave him a legal right to keep others from making, using or selling a dial telephone. Thus, no one has a "monopoly" on a dial telephone because no one can legally make a dial telephone. Bell would need a license from the dial telephone inventor and the dial telephone inventor would need a license from Bell.

Thus, when you have a license under a patent, you still have to make sure your product will not infringe the patents of someone else.

## THE VALUE OF PATENTS AND KNOW-HOW

While patents can be of significant value in the licensing business, the most valuable thing to licensees is the technical know-how for developing and/or manufacturing an actual product. The patent right may give us certain legal rights, but the best patent in the world will not give us the industrial know-how to start immediate manufacture. Thus, when we are looking for a license from others, we are looking for someone who can give us manufacturing know-how so that we can get into the market as soon as possible with the least amount of expense.

Usually, only the Government contractor has the know-how necessary to develop the contractor's invention to practical commercial use. The commercial rights are the only valuable right involved in Government-owned or sponsored patents, as the Government always has at least a license for governmental purposes, which is all the Government really needs.

Also, of course, the contractor is usually the entity which has the most incentive to develop commercial uses for the invention if he owns title. Of course, if all the contractor has is a non-exclusive license, there is little incentive to spend money to develop the invention commercially, as others may obtain licenses and copy the product.

## GOVERNMENT LICENSES

If we take a license from the Government, all we really receive is an immunity from suit under the Government-owned patent, which is, after all, not a right to do anything, but is a right to exclude others from doing something. It is very unlikely that the Government will have adequate know-how itself to make it of interest to us. Even if the Government should have this know-how, it may be very difficult to have real access to it and to encourage the Government employees who have this know-how to give us access to this know-how and provide the person-to-person continued contact necessary to make the best use of this know-how in our manufacturing. This is an even greater problem if the know-how is only possessed by a Government contractor who has no incentive to help us.

Otherwise, with merely a license under a Government-owned patent, all we really have is a license to do R&D and develop a product on our own at our own expense and over a significant amount of time.

What we, and others, seek under any license, is know-how so that we can introduce the product commercially as soon as possible with the least amount of our own research and development expense.

As mentioned above, what one really receives in a patent license from a patent owner is an immunity from suit. It's hard for me to believe that the U.S. Government, as a patent owner, is going to actually sue American citizens for infringing patents owned by the Government. Without such suits, or the threat of such suits, to enforce its patents, the Government will not be able to license their naked patents, in the absence of know-how to accompany the patents.

Any licensing person will tell you that nothing is more difficult than attempting to license a naked patent right without know-how to go along with it. It can be done on occasion, but it often involves a lawsuit with hundreds of thousands of dollars spent in a non-productive manner.

If you can provide actual know-how and provide a real new product to the licensee, it is easy. If you cannot do this, it merely gives the licensee a legal right to practice under the patent and he must spend considerable amounts of money to develop the product commercially. Such naked patent licensing is extremely difficult and often not worth the effort.

## GOVERNMENT OWNERSHIP OF PATENTS

Frankly, I think Government ownership of patents is a waste of time and an unnecessary burden on the taxpaying public. The taxpayer, which is all of us, must pay for substantial staffs of Government patent lawyers who tie up part of the U.S. Patent and Trademark Office (USPTO) in obtaining their patents. If Government-owned patents were eliminated, the patent examining part of the USPTO would benefit by not having to spend some 3 percent of their effort examining Government-owned U.S. patents. This 3 percent could be used on the USPTO's seriously underfunded patent operations. Also, if the money spent by the Government in funding its own lawyers in obtaining patents were invested in the Trademark operation of the USPTO, the public would be much better served.

We have all heard that the Government has many thousands of patents, with the figure of 30,000 being one which is frequently mentioned. In my opinion, the vast majority of these inventions, probably over 90 percent, would not be patented if they had been owned by a commercial organization, as the organization would not have thought it was worthwhile to spend the money to obtain a patent on these inventions. This does not mean that these inventions were not patentable, or that the inventors, whether they be Government employees or employees of Government contractors, did not make a legitimate invention which would meet technical and legal criteria for filing a patent application. What it does mean is that these inventions fail to meet the business and marketing criteria used by commercial industrial organizations in deciding whether to file a patent application in the USPTO.

In Itek's case, we are interested only in getting patents on products which we manufacture and we rarely, if ever, get patents on technology that we would only license. Our job is manufacturing and we can make more money by using our limited assets in this direction as opposed to developing technology for others to manufacture under a license.

## INCOME TO THE GOVERNMENT

If the contractor owned the patent right and the appropriate technology was developed for commercial use, the Government would make more money in taxes from the profit made by the contractor or, in a few cases, the royalties taken in by the contractor and taxes on the profits made by the licensee, than the Government would ever be able to make itself on any royalty basis. This is particularly true when the expense of organizating a major licensing effort is taken into account.

In this regard, I would strongly recommend that if the Government decides to go into licensing in a big way, the licensing organization budget be carefully checked and if, after a very few years, the organization is not making a net profit, but is providing a drain on the taxpayer, it should be abolished.

### PATENT SUPPRESSION

One of the fears expressed by some is that contractors who retain title to government sponsored inventions will "suppress" the inventions deliberately and they will not be used. To some, "suppression" refers to the rumors one hears about someone buying up the patents and keeping the invention secret. Sttements such as this indicate the lack of knowledge of the patent system of those who make such statments. A patent is a public document which is available for 50¢ a copy and thus, it is impossible to "buy up the patents" and keep an invention secret as the invention has already been published.

If there were a situation where the patent application had not issued and someone bought up the patent application to prevent its issuance and keep the invention secret, this would be very unwise of that party. If there is really an important invention involved, you can be sure that, before long, others will make the invention themselves and may be able to obtain patents on it and prevent the original patent application owner from practicing the invention.

In actual practice, if a company owns patents which are not being used and others are interested in obtaining a license under these patents, the patent owner will be very happy to grant a license. All the five corporations that I have worked for would be very happy to grant such a license. Patent "suspression" does not really exist in the real world.

In any event, Section 304—March-In-Rights of the proposed "Uniform Science and Technology Research and Development Utilization Act" should remove all fears in this area. Under this section, the Government has the right to require the contrctor to grant licenses to others if the contractor has not filed a patent application on the invention within a reasonable time or has not taken or is not expected to take, within a reasonable time, effective steps to practice the invention. Other specified reasons are also set forth where the government may "march in". Thus "suppression" is not real problem.

### THE "GIVE AWAY" OF PATENT RIGHTS

Some have expressed concern that if the contractor retains title, the government is giving away millions of dollars in patent rights when the Government has already paid for them. While this has a certain amount of theoretical logic, in practice, it is not true. Nearly all the patents owned by the Government are worthless either because there are no commercial applications of the technology or there is no know-how to go along with the naked patent. The taxpayers have a much better opprotunity to recoup the money with respect to these inventions by letting the contractor develop them and pay taxes to the government. If these patents are so valuable, why have the inventions covered by these patents not been used and developed previously? They have been, and are presently, available from the Government, often merely for the asking. There is not "give away" because there is nothing to give away.

### SUMMARY

In general, the proposed legislation will give the U.S. Government the best opportunity to see that whatever technology is susceptible of development for commercial purposes is developed in the shortest period of time with the largest potential return to the Government, and thus, to the public, which has paid for the Government research.

### COMMENTS ON SPECIFIC CLAUSES

*Section 103(8)*

The definition of "made under the contract" as is the case with all Government definitions of inventions, relates to "the conception or first actual reduction to practice" of the invention. In practice, this definition can be very unfair. An inventor may conceive an invention, file a patent application on it, have the patent issue and if some years later he obtains a Government contract to build the first prototype, the Government would obtain a license or possibly title to the invention.

That this is unfair can be seen by the fact that the inventor, who is the patent owner, without such a Government contract, could sue an infringer and obtain either an injunction or royalties from that infringer. If the suit were pending while the contract ws being performed, the Government could claim the royalties, if it received title. In the patent law, there are two ways to reduce an invention to practice. One is the "actual" reduction referred to in such definition. The other is "constructive" reduction to practice, which the preparation and filing of a patent application in the U.S. Patent and Trademark Office.

This definition would be fair if it either referred to just conception or if the word "actual" were removed so that the definition referred to the "first reduction to practice", which would include actual reduction to practice or constructive reduction to practice by filing a patent application.

*Section 201—Responsibility (of the Secretary of Commerce)*

I have some concern with this section, which is much improved from the Stevenson-Schmitt Bill of last year, because it provides for the Secretary of Commerce to, among other things, "evaluate . . . government-owned inventions in order to identify those inventions with the greatest commercial potential and to promote the development of such inventions identified." It is nearly impossible, and certainly very expensive, to evaluate all the 30,000 presently owned Government patents. It would be a waste of money to attempt to do so. In practice, Government patents which may be worthwhile can be readily identified by the appropriate industrial concern which may need them.

*Section 301(a)(2)—Rights of the Government*

This section states that the Government will retain title to any invention made under the contract of a federal agency if the agency determines "when it is determined by a Government authority which is authorized by statute or Executive order to conduct foreign intelligence or counterintelligence activities, that the restriction or elimination of the right to retain title to any such invention is necessary to protect the security of such activities."

Practically speaking, I do not understand how the mere ownership of title to such invention would have any effect on the security of any activities. Itek, and any number of other organizations, perform work under classified contracts for various governmental agencies, some of which are very highly classified. If an invention occurs under this contract, a patent application can be prepared and filed in a special section of the USPTO which has clearances of the highest order. The patent application will be examined under the strictest secrecy precautions required by the governmental agency involved and, after the patent application has been found to be allowable by the USPTO, it will remain unpublished until such time as the governmental agency involved feels it is appropriate to be declassified.

Itek owns a number of patent applications, which are highly classified have been found to be allowable by the USPTO and will not issue, nor should they issue, for many years until they are declassified.

Thus, it seems that the only security aspect of a classified invention, the title of which is owned by a contractor, occurs because (1) a patent application is prepared by a patent attorney, who must have the necessary security clearance, (2) the patent application is filed in the USPTO, which also must have the necessary security clearance. The agencies involved, including the Central Intelligence Agency, are the final authority which must approve the declassification of the patent application and thus, they retain control of the security of the invention.

I have not further comments, but I am available to answer questions at my time.

Senator SCHMITT. Thank you. Those detailed comments are very helpful, and I suspect you're correct. We'll go into that in more detail.

Mr. Lawrence, as we discussed earlier, New Mexico has benefitted greatly from your activities in the development and pursuit of the high-bypass fanjet engine, which you probably would not have done, had you not been able to work under DOD-type patent policies to gain title to the inventions.

Why did this not happen in the case of the fuel cell? You mentioned the technologies of the fuel cells. Pieces of them have been very useful.

But why did the fuel cell not go the way of the high-bypass fanjet engine?

Why don't we have commercially available fuel cells today?

Mr. LAWRENCE. In the case of the fuel cell, Mr. Chairman, we were granted rights and we derived inventions. The fuel cell per se, so far as we could see, had no direct commercial application. You had to do additional work. And in order to do the additional work, you needed the basic patents.

In this case, NASA did indeed grant those patent rights, and let GE have title.

Senator SCHMITT. So there's no distinction in patents having to do with the commercial viability of the fuel cell?

Mr. LAWRENCE. That's right, sir. Both of these were made possible, we believe, in the case of DOD, because it is their standard policy; in the case of NASA, because they granted a waiver, despite their standard policy, which normally gives them title. But in this case, they did grant us title.

Senator SCHMITT. But the difference between, on the one hand, the pursuit of individual components and subsystems, rather than the entire fuel cell, and on the other hand, we developed the entire engine, has nothing to do with the patent waivers or patent policies of the two agencies.

Mr. LAWRENCE. I would not be able to tell you with certainty, sir. I do know that in the case of NASA, they do not grant waivers on the basic substance of the contract, normally. And therefore, probably to the extent that patents were directly on the fuel cell, there may not have been waivers. But I can't tell you that with certainty.

Senator SCHMITT. Could you check that for our record, and see if, in your decisions whether to pursue a commercial fuel cell or not, the patent policy at NASA may have been a factor?

Mr. LAWRENCE. Yes, sir. I will.

Senator SCHMITT. I'm looking at it from a very biased point of view. My own evaluation of fuel cells, a few years ago, indicated to me—strongly suggested there was a strong commercial market. It just hasn't happened for a variety of reasons, and I'm still trying to figure out why.

Mr. LAWRENCE. I'll find out for you, sir.

Senator SCHMITT. Also, Mr. Lawrence, what are the criteria your company would use in making a decision whether to pursue a Federal research and development contract, or whether to pursue a line of research with company funds?

Would patent considerations enter into this?

Mr. LAWRENCE. Yes, sir; patents are a consideration, but they're far from the only consideration.

In the case of aircraft engines, for instance, the sums involved to start from scratch are so huge that patents can only be looked at as part of the question. But in other situations, it matters whether you can say that a patent covers a product or a small group of patents cover a product. In those cases, we are particularly sensitive in looking at Government-funded research.

Senator SCHMITT. Do you know of any situation where the patent issue has been determinative in the decision?

Mr. LAWRENCE. No. I would have to find that out for you, too, sir.

[The following information was subsequently received for the record:]

At the July 28 hearing of the Subcommittee on Science, Technology and Space relating to a Uniform Government Patent Policy, you requested (in connection with the statement I made) that I send you answers to the following two questions:

1. was the patent policy at NASA a factor in General Electric Company's decision whether to pursue a commercial fuel cell?

2. is there any situation within General Electric where the patent issue has been determinative in a decision whether to pursue a Federal research and development contract?

With respect to the first question, I am informed that NASA did grant waivers on the patents relating to fuel cells (as well as those relating to components thereof). However, when making its decision as to what commercial developments to pursue based on the fuel cell research General Electric decided to spend the available development funds on the components rather than on the full cell per se. This decision was due, in part, to awareness that United Technologies was pursuing commercialization of a somewhat different fuel cell which was not within the patents.

With respect to the second question, I am informed that in recent years General Electric has not refused Government contracts soley because of the patent rights issue. However, there have been instances where we have made our participation contingent on receiving a waiver, i.e., on getting title. A copy of the General Electric document in such an instance (please note the marked paragraph on page 2) is enclosed, together with the Government response granting the waiver.

In addition, it is worth noting that while General Electric usually pursues Federal research and development contracts which are consistent with its other over-all goals whether or not patent rights are granted, there still remains the issue whether it should invest the added funds needed to get a development item to the marketplace. The question of patent ownership can be significant in justifying the private investment needed for commercialization.

Please let me know if you would like to receive additional information regarding any aspect of the foregoing. On behalf of General Electric, I would like to thank you again for the opportunity to state our support for the proposed Uniform Government Patent Policy.

Senator SCHMITT. Mr. Jackson, you are obviously concerned about background rights. It is a core issue, here, whether or not the Government receives access to historical information, historical patents. And they mentioned at the same time, receiving title, under present policy, to an invention.

Do you see that that applies equally to large, medium, and small companies?

Mr. JACKSON. Yes, sir. I do. I have worked with a large corporation, I now work for a medium-sized corporation, and have a lot of dealings with small corporations. In nearly all the cases that come to mind, they would equally apply.

Senator SCHMITT. Is there a reluctance, then, to enter into Government contracts because of the possibility of losing background rights?

Mr. JACKSON. Obviously, I would not enter into such a contract. I can say, not only with reluctance, but we just wouldn't do it.

Senator SCHMITT. When I first became interested in this issue, it was because I was directing NASA's energy program, and we were trying to negotiate an interagency agreement between NASA and the Department of the Interior for technology development in underground coal mining, applying some aerospace technologies to that problem, and trying to leapfrog the current state of productivity in that area of energy production.

The effort eventually bogged down, and relatively little came of it because of the question of patent policy, and Interior's insistence on retaining the background rights. In that case, we knew directly from many industries who might have bid on the contracts that they would not bid so long as Interior's patent policy prevailed.

Do you think that is common within the industry, that there are corporations of any size that will not bid on Government contracts if they require access to background rights?

Mr. JACKSON. Yes, sir. I think it's a common feeling. I might add that conflicting patent rights and conflicting commercial rights between corporations are less a frequent occurrence. We somehow negotiate out a business arrangement to get around the various problems that are envisioned by these various companies.

In the situation you just mentioned, with the limited amount of information you gave me, if that was a commercial situation only, and there was something to be commercially gained at the far end of the pipeline, then I'm sure we could have worked out some kind of a mutually satisfactory business arrangement, with all the partners involved.

But generally speaking, the problem is that we let go some of our background propriety rights, except perhaps maybe in a field of use that's completely unrelated to our main thrust of our commercial interests. We are then going to be setting somebody up with all of our know-how and background that can be used in competition with us, maybe with improved devices. But it is too commercially risky for us to do that.

Senator SCHMITT. Mr. Blair just indicated a while ago that the know-how is the key, and if all you're doing is giving out pieces of paper, are you really giving up a competitive edge?

Mr. JACKSON. Well, usually—I'm sorry I did not discriminate between the piece of paper and the know-how, because usually they go hand in hand. If it was just a piece of paper, we'd take that into consideration. If it's just a matter of letting someone have a license for a field-of-use that we're not interested in, then we'd handle it on that basis. We would put a value on it, a price tag on it. But it is valueless, pretty much, without the know-how, and I think the two usually are in lockstep together. I did not make that discrimination in my earlier answer.

Senator SCHMITT. Gentlemen, regardless of how specifically we draft this legislation, disputes will inevitably arise between the contractor and the funding agency. To maintain some type of consistency, our first thought was to give the Secretary of Commerce the authority to review and try to settle with administrative finality any disputes. This does not, obviously, preclude judicial review.

Do you think this is an unnecessary step?

Should we go directly to judicial review?

Mr. JACKSON. I think the other panelists may be a little better able to answer that than myself, Senator.

Mr. BLAIR. I think the advantage of having the Secretary of Commerce or someone be the one place you go for review is that at least there would be some uniformity, even in handling things that are the same regulations.

I am inclined to think that if there is an appeal from the agency, I would think it should go someplace like the Secretary of Commerce before it goes to the courts, if the Secretary of Commerce and some of his people would pick up the expertise in these areas.

One of the problems you run into in handling these situations is if there is money involved—say, in a license situation—then of course the agencies themselves feel that they would want to get the money. And if they thought that by referring it to the Secretary of Commerce he would have the authority to get the money, they wouldn't be so enthusiastic. That would be one of the problems you would have.

In a different situation dealing with Government patents, when the Government infringes on your patents, if you go the administrative claim route to the agency, the agency will have to pay whatever they decided they were going to OK to pay under a license. On the other hand, if it goes to court, any settlement comes out of the pocket of the Department of Justice, which of course is an incentive for the agency not to settle, because it won't come out of their pocket. I think that's something that should be looked at.

I haven't looked at the proposed legislation to see whether there are any financial things that would, in effect, force someone to say, "No, I don't want to do that," and go over to that other part of the Government.

I'm a little inclined, personally, to think that all claims against the Government for patent infringement should go to one place within the Government, before it goes to the courts.

Senator **Schmitt**. You're suggesting, maybe, that the financial burden, the funding burden, should be on the agency that declined to approve the licensing of the patent?

Mr. **Blair**. I would think that would be one way, Senator.

Senator **Schmitt**. Gentlemen, I must go to see if we can work out an arrangement about Amtrak with the House. We're still in conference on a variety of issues.

Senator Cannon, as well as other senators, may have some questions and if they do we will submit them to you.

The next hearing on this subject will be reconvened as a joint hearing with the House Science and Technology Committee, on September 30, 1981. We expect to continue to pursue these issues, as well as those which lead to the frequent claim that somehow or another, it's a giveaway to provide access or title to patent development or Government contracts.

That will continue to be a major issue, whether we want it to be or not. We must examine it, and make sure that it's aired fully, so that the Congress, as well as the public, can make a decision on whether it is in fact a factor.

The hearing is adjourned.

[Whereupon, at 11:55 a.m., the hearing was adjourned, to reconvene on September 30, 1981.]

[The following information was subsequently received for the record:]

Machinery and Allied Products Institute,
*Washington, D.C., July 31, 1981.*

Hon. Harrison H. Schmitt,
*Chairman, Subcommittee on Science, Technology and Space, Senate Committee on Commerce, Science and Transportation, Washington, D.C.*

Dear Mr. Chairman: We greatly appreicate the opportunity to comment on the "Uniform Science and Technology Research and Development Utilization Act" which is now before this Subcommittee in the form of a "staff working draft." We ask that this statement be included in the record of these hearings.

The Machinery and Allied Products Institute (MAPI) is the national organization of capital goods and allied product manufacturers. Because of the advanced technology and the intense competition, both domestic and international, within the group of companies which manufacture capital goods, the membership of MAPI is especially dependent upon and therefore concerned with the United States patent system. The Institute has long been interested in the patent system and in the question of federal patent policy with which the measure now before the subcommittee, the Schmitt bill, is concerned. This statement is based upon the experience and attitudes of our member companies as reported to the Institute over a considerable number of years.

At the outset, we wish to commend you, Mr. Chairman, for your interest in this area and your efforts on behalf of legislation to promote the use of the patent system to provide appropriate incentive to firms to undertake research and development work for the government. We also recognize that the current draft bill is based upon your earlier bills on the same subject, S. 3627 in the 95th Congress and S. 1215 in the 96th Congress. With respect to the latter bill, this Subcommittee held hearings and, in that connection, the Institute submitted its views in support of that bill. For the most part, the draft bill repeats the key provisions and the general thrust of S. 1215 and amounts to a proposal for adoption, government-wide, of the "license" policy which MAPI has long supported and the rejection, with minor exceptions, of the "title" policy. As such, we support it and urge its early consideration and adoption.

In order, briefly, to expound the reasoning which leads to our support for this measure, we have summarized below our conclusions regarding a series of fundamental issues which are necessarily involved in this consideration of federal patent policy. We have examined each of these issues as it would be affected by adoption of the Schmitt bill.

### PERFORMANCE OF GOVERNMENT-SPONSORED RESEARCH AND DEVELOPMENT

Although important, policy respecting the disposition of rights to inventions resulting from government-sponsored research and development is a secondary and derivative issue. The primary consideration is the quality of performance of research and development work for which the government has contracted. Thus, a threshold question becomes: How can contractors best qualified to undertake the program which the government has in mind be attracted to such work? Does federal patent policy affect the answer to this question and will the nature of that policy bear upon the government's achievement of the best possible results?

In our judgment, the "staff working draft" of the Schmitt bill should tend to attract the best qualified contractors to the government's service for at least two reasons. First, the contractor could expect to benefit commercially from any useful invention resulting from the work to be performed. In addition, because Section 306, *Background Rights,* says "nothing contained in this Act shall be construed to deprive the owner of any background patent or to such rights as the owner may have thereunder," the proposal would remove what has long been a disincentive to the acceptance of government research and development work by some contractors. These two reasons for supporting the Schmitt bill are interactive and complementary. That company which has done the greatest amount of work in a particular scientific or technological field is likely to be one of the better candidates for the performance of research and development in such a field. At the same time, such a company is the one which is likey to have the greatest amount of pertinent background data and the greater the quantity of such data, the greater the danger of exposing it to exposure or loss by acceptance of a government-sponsored research and development contract.

### WHAT POLICY WILL ". . . PROMOTE THE PROGRESS OF SCIENCE AND USEFUL ARTS"?

It seems to us that this constitutional grant of authority to the Congress is necessarily a matter to be considered in reviewing federal patent policy. New knowledge revealed by government research and development ought to be used widely as its utility permits for the benefit of all Americans. How best can we achieve this objective?

The "staff working draft" of the Schmitt bill, in our judgment, provides an appropriate response to this question. The measure would provide incentives for the best possible performance of the work contracted for and, beyond that, if some useful invention should result, a further incentive for commercialization. By now we think there is a general recognition of a point which MAPI has made for years: In the absence of an exclusive patent right, it is unlikely that any company will want to develop and commercialize an invention resulting from government-sponsored research and development. The cost of commercialization is significantly greater than that of creating the invention itself and, unless a company can see its way clear to recoup the very substantial expenditure involved in commercialization and still show a profit over the period of the patent, it is not likely to take any step in that direction.[1] Finally, because of its background position and its experience under the R & D agreement, the contractor is in the best position to commercialize any such invention for the benefit of the general public.

*Government stewardship.*—We want to quote a further passage from the Report of the Advisory Committee on Industrial Innovation, from page 156:

"If the results of federally sponsored R. & D. do not reach the consumer in the form of tangible benefits, the Government has not completed its job and has not been a good steward of the taxpayers' money. The right to exclude others conferred by a patent, or an exclusive license under a patent, may be the only incentive great enought to induce the investment needed for development and marketing of products. Such commercial utilization of the results of government-sponsored research would insure that the public would receive its benefits in the way of products and services, more jobs, more income, etc. The cost of government funding will be recovered from the taxes paid by the workers and their companies."

The Schmitt bill would make possible a responsible governmental "stewardship" both of R&D money and the incidental fall-out of such spending in the form of new intellectual prosperity.

### HAVE WE LOST OUR "YANKEE INGENUITY"?

For generations, Americans have prided themselves on the products of their ingenuity, their endless curiosity as to how things work, and their entrepreneurial genius in turning the gleam in an inventor's eye into a useful new product or, in some cases, a dynamic new industry.

We think it unnecessary to recite yet again the statistical evidence of our seeming industrial decline—lowered productivity, lessened patenting (which presumably means fewer patentable ideas), a loss of markets because of alleged deficiencies in design and quality, a precipitous decline in certain international market shares, and an unfavorable balance of international trade, etc. Some of these unhappy statistics derive from other considerations and we do not presume to suggest that a change in federal patent policy will somehow immediately and magically adjust the imbalances represented by these trends. However, we believe the policy embodied in the Schmitt bill can make a very substantial contribution to overcoming these problems by providing powerful incentives to commercialize useful new knowledge resulting from government-sponsored research and development. It has always seemed to us ludicrous that, by government policy, we have virtually insured non-commercialization—we have rendered sterile—much of the results of government spending in the research and development area. To be sure, many inventions resulting from such spending have no commercial value, but some do and the change in patent policy proposed in the Schmitt bill can help to restore the industrial and commercial vigor of the United States.

### A SINGLE RULE

At present and for some years past, the research and development contractor has confronted differing patent policies as among the several federal agencies with which he may be dealing. The Department of Defense has long followed a modified license policy. Conversely, NASA and AEC (now the Energy Department) have title policies by statute although waivers of government rights are permitted in appropriate cases. Finally, any of several statutes authorizing special research and development programs include fairly rigid title policy provisions.

One of the greatest benefits of adopting the Schmitt bill would be the establishment of a single government-wide rule.

In concluding this statement, we reiterate our support for the "staff working draft" of the Schmitt bill. Finally, we again want to express our appreciation for this opportunity to present the Institute's views. If the Institute or its staff can be of any further assistance to the Subcommittee, we hope you will not hesitate to ask.

Respectfully,

CHARLES STEWART, *President.*

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[1] This is, of course, recognized in the Report of the Advisory Committee on Industrial Innovation, U.S. Department of Commerce, September 1979, p. 156. In supporting the argument advanced above, the Advisory Committee quoted the earlier Harbridge House Report to this effect:

"A low, overall commercial utilization rate of Government-generated inventions has been achieved; that rate doubled, however, when contractors with commercial background positions were allowed to keep exclusive commercial rights to the inventions."

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